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H. L. Peirson

THE ANATOMY OF THE Humane Body.

Illuſtrated
With Twenty-three Copper-Plates of the
moſt Conſiderable Parts;
All done after the Life.

BY
W. CHESELDEN, *Surgeon*;
Fellow of the ROYAL SOCIETY.

Of all GOD's Works that do this World adorn,
There is not one more Fair and Excellent,
Than is Man's Body both for Power and Form.
Spencer.

LONDON.
Printed for N. CLIFF, and D. JACKSON,
at the *Bible* and *Three Crowns* next *Mercers*
Chapple in *Cheapſide, and* W. INNYS, at the
Feathers in St. *Paul's* Church-yard. 1713.

TO

Dr. RICHARD MEAD.

Fellow of the College of
Phyſicians in *London*,
Phyſician to St. *Thomas*'s Hoſpital,
And Fellow of the
ROYAL SOCIETY.

SIR,

EVERY part of PHYSICK may juſtly preſume on your Protection, to whom it owes ſo much Improvement.

ANATOMY in particular has receiv'd ſuch advantage from your LECTURES, that it were a kind of Injuſtice, not to Dedicate all Endeavours in that way to you; in me indeed it would be unpardonable not to offer the Fruits of thoſe Studies, which at firſt began, and have ſtill been carried on with your Encouragement. The kind reception my induſtry has met with, is intirely owing to you, the Authority of whoſe Opinion has in every place ſecur'd me ſo much favour; eſpecially in that Seat of Learning, that with diſtinguiſh'd Honours rewarded your Merit.

I am,

SIR,

Your moſt Oblig'd and

Obedient humble Servant,

W. CHESELDEN.

THE PREFACE.

THIS TREATISE *being deſign'd for the Uſe of Thoſe who Study* ANATOMY *for their Entertainment, or to qualify Themſelves for the Knowledge of* PHYSICK *or* SURGERY, *and not for ſuch as wou'd be critically knowing in the moſt minute Parts; I have purpoſely omitted a great many nice, unneceſſary Diviſions, which are commonly made, and Deſcriptions of thoſe ſmall Veſſels, which are not only different in moſt Bodies, but even in the oppoſite Limbs of the ſame Body.*

THROUGHOUT the Deſcriptions I have made, which are all taken from a great number of Humane Bodies, I have

I have been moſt particular about thoſe Parts whoſe Figure and Situation are moſt conſtant, and which are of the greateſt Importance to be well underſtood, it being too common among Writers of ANATOMY, *to treat moſt largely of thoſe Parts whoſe Uſes are leaſt underſtood; and thoſe* Anatomiſts *who have been the leaſt knowing in the Uſe of the Parts have been generally moſt prolix in their Deſcriptions.*

AND becauſe nothing can be more abſurd, than to deſcribe one Part by another which remains undeſcrib'd; I have begun with the Bones, *without which the* Muſcles *cannot be underſtood; and after proceeded to the* Muſcles, *the knowledge of them being neceſſary for the Deſcription of the* Veſſels *that run among them.*

IN the Third Book *the* Viſcera *are explain'd in ſuch a Method as will moſt* *conduce to the Knowledge of the* Animal OEconomy. *But the Parts of Generation, and the Five Senſes, not neceſſarily following or depending on any other Parts, I have deſcrib'd them in a diſtinct* Book.

AS moſt of the Names of the Parts are aptly given from their Figure, Situation, or Uſe, I have every-where (to make this Work as conciſe as poſſible) omitted in Deſcription what is directly imply'd in the Name; and where the Figure, or Situation, of any Part is better expreſs'd in a Cutt, than it can be deſcrib'd, I have taken the ſame Advantage. The Cutts are all Original, and done by a Scale after the Life.

I have, according as the Survey of the ſeveral Parts led me to it, inſerted in ſome places of this Treatiſe a few Chirurgical Remarks and Caſes, ſuch as I *have not met with in Books of Surgery, or ſuch as have been wrong judg'd by Writers for want of Knowledge in* ANATOMY. *If they are of Uſe, I hope they will need no Apology for their being Digreſſions.*

IT is with great pleaſure I here acknowledge my Oligations to Dr. Douglas, *that moſt Accurate and Indefatigable* ANATOMIST, *whoſe Aſſiſtance has been very uſeful to me in the Compiling of this Work, and who has oblig'd the World with an exacter Deſcription of the* Muſcles, *than any extant. I am likewiſe very much oblig'd to my Honoured Friend Mr.* Green, *Surgeon to the Hoſpitals of* Chriſt-Church *and St.* Bartholomew, *for his kind peruſal of part of theſe Papers; as alſo to my late worthy Maſter Mr.* Ferne, *Surgeon to St.* Thomas's *Hoſpital.*

AND for any Errors that I may have committed, as a Work of this Nature, I preſume, no One will expect Perfect, I ſhall be ſo far from endeavouring to defend 'em (Truth, Brevity, and plainneſs of Deſcription, being all I aim at) that I ſhall be as well-pleas'd to ſee 'em corrected by any Perſon, as I have been to mend thoſe I have met with in others.

THE CONTENTS.

BOOK I.

Chap. I. OF *the* Bones *in general*, Page 1

Chap. II. *Of the Articulations of the* Bones, pag. 3

Chap. III. *Of the* Sutures *and* Bones *of the* Head, pag. 4

Chap. IV. *Of the* Bones *of the* Trunk, pag. 14

Chap. V. *Of the* Bones *of the* Upper Limb. pag. 71

Chap. VI. *Of the* Bones *of the* Lower Limb, pag. 20

Chap. VII. *Of the* Cartilages, pag. 23

Chap. VIII. *Of the* Ligaments, pag. 25

Chap. IX. *Of the* Lubricating Glands *of the* Joynts, pag. 29

Table I. *The Fore-View of a* Sceleton: *From Dr*. Douglaſs, pag. 31

Table II. *The Back-View of a* Sceleton: *From Dr*. Douglaſs, pag. 32

Table III. *The* Bones *of the* Head: *From Dr*. Douglaſs. pag. 33

Tab. IV. p. 34

Table V. pag. 36

Table VI. pag. 37

BOOK II.

Chap. I. OF *the* Muſcles *in general*, Page 39

Chap. II. *Of the* Membranes *of the* Muſcles, pag. 41

Chap. III. *Of the* Muſcles, pag. 42

Table VII. pag. 86

Table VIII. Muſcles *of the* Face, pag. 88

Table IX. pag. 90

BOOK III.

Chap. I. OF *the External Parts, and Common Integuments*, pag. 91

Chap. II. *Of the* Membranes *in general*, pag. 94

Chap. III. *Of the* Membranes *of the Two* Lower Venters, pag. 95

Chap. IV. *Of the* Salivary Glands, pag. 97

Chap. V. *Of the* Omentum, Ductus Alimentalis *and* Meſentery, pag. 100

Chap. VI. *Of the* Liver, Gall-Bladder, Pancreas *and* Splene, pag. 106

Chap. VII. *Of the* Vaſa Lactea, pag. 111

Chap. VIII. *Of the* Lungs, Pericardium *and* Heart, pag. 112

Chap. IX. *Of the* Arteries *and* Veins, pag. 117

Chap. X. *Of the* Lymphatics, *and* Glands *that accompany the* Lymphatics, pag. 127

Chap. XI. *Of the* Dura Mater *and* Pia Mater, pag. 130

Chap. XII. *Of the* Cerebrum, Cerebellum, Medulla Oblongata *and* Medulla Spinalis, pag. 134

Chap. XIII. *Of the* Nerves, pag. 137

Chap. XIV. *Of the Courſe of the* Aliment *and* Fluids, pag. 144

Table X. *The Parts of the Two* Lower Venters, *in their Natural Situation*, pag. 147

Table XI. *The* Heart *with the* Auricles, *&c.* *fill'd with Wax*, pag. 148

Table XII. *The* Veſſels *at the Baſis of the* Heart *revers'd*, pag. 149

Table XIII. pag. 150

Table XIV. *The Veſſels of the* Brain *fill'd with Wax*, pag. 153

Tab. XV. Arteries *fill'd with Wax*, p. 154

Table XVI. *The* Vena Portæ *fill'd with Wax*, pag. 155

Table XVII. *The* Veins *of the* Liver, pag. 156

Table XVIII. *The* Excretory Ducts *and* Arteries *of the* Liver, pag. 157

Table XIX. *The* Nerves *and the* Medulla Spinalis, pag. 158

BOOK IV.

Chap. I. OF *the Urinary and Genital Parts of Men*, pag. 161

Chap. II. *Of the Genital Parts of Women*, pag. 166

Chap. III. *Of the* Fœtus *in the* Womb, pag. 169

Chap. IV. *Of the* Eye, pag. 174

Chap. V. *Of the* Ear, *&c.* pag. 177

Table XX. *The Urinary and Genital Parts of a Man*, pag. 111

Chap.

Table XXI. pag. 183

Table XXII. *The* Veſſels *of the* Liver, *&c.* *of a* Fœtus *fill'd with Wax*, pag. 185

Table XXIII. *The Great* Veſſels *of the* Heart, *both of a* Fœtus *and an* Adult, pag. 186

SYLLABUS, pag. 191.

THE

INTRODUCTION.

THE receiv'd Opinion of the Texture of the Animal Body, is, That it is a Compages of Veſſels, variouſly diſpos'd, to Form Parts of different Figures, for different Uſes.

The Ancients ſuppos'd, That the HEART and BRAIN were firſt form'd, and that all the other Parts proceeded from them: They diſtinguiſh'd them into *Spermatic* and *Sanguineous*; and thought, becauſe the Brain was cover'd with Two Membranes, that all the other Parts muſt be ſo too; and frequently ingag'd themſelves in Diſputes about the Derivation of Parts; with many other Things of the like Nature, Conſequences of their *Hypotheſis.* But the Moderns, aſſiſted with Glaſſes, have diſcover'd, That all the Parts exiſt in Miniature, from the firſt Formation of the *Fœtus*, and that their increaſe, is only the extenſion and thickning of their Veſſels, and that no Part can owe its Exiſtence to another.

Thus much we thought neceſſary to Premiſe, that the Reader might have a general *Idea* of the Body, and that he may ſee for what Reaſon we take no Notice in this Treatiſe of the Diſtinctions and Diviſions of Parts, made by ancient *Anatomiſts*, and thoſe who have Copy'd after 'em.

The Conſtituent Parts of the Animal Body, are, *Nerves*, *Arteries*, *Veins*, *Lymphæducts*, *Excretory-veſſels*, *Fibres*, *Membranes*, *Glands*, *Muſcles*, *Tendons*, *Ligaments*, *Bones* and *Cartilages*; to theſe, we may add the *Hair* and *Nails*, tho' they have only a Vegitative Life.

NERVES, are Cylindrical, or Priſmatic Bodies, of ſtreight Fibres, which ariſe from the *Medulla Oblongata* of the Brain, and the *Medulla Spinalis*, and terminate in all the Senſitive Parts; They are the immediate Organs of Senſation.

The ARTERIES, are Tubes that ariſe in Two Trunks from the Two Ventricles of the Heart, and thence dividing into Branches, diſtribute the Blood to every Part of the Body.

VEINS, are Tubes to return the Blood from the Extremities of the Arteries to the Heart.

LYMPHÆ-DUCTS, are pellucid Tubes to carry Lymph from all Parts, eſpecially the Glands to the *Vaſa Lactea.*

EXCRETORY-VESSELS, are either Tubes from Glands to convey the ſecreted Fluids to their reſpective Places, or Veſſels from the ſmall Guts, to carry the Chyle to the Blood-veſſels; theſe laſt, are call'd *Vaſa Lactea.*

FIBRES, as they appear to the naked Eye, are ſimple Threads of the minuteſt Blood-veſſels or Nerves, or both, which enter into the Compoſition of every Part.

MEMBRANES, are Compages's of Fibres, expanded, to cover, or line any other Part.

A GLAND, is compos'd of an Artery, Vein, Lymphatic, Excretory-duct, and Nerve. The Uſe of Glands is to ſecrete

Fluids from the Blood for divers Uſes. The Artery brings the Blood, the Vein and Lymphatic return it, the Excretory-duct conveys the Matter ſecreted to the Place it is deſign'd for.

MUSCLES, are diſtinct portions of Fleſh, which by contracting, perform the Motions of the Body.

TENDONS, are the ſame Fibres of which the Muſcles are compos'd, but more cloſely connected, that they may poſſeſs leſs ſpace in a Limb, and be inſerted in leſs room into a Bone.

LIGAMENTS, are ſtrong Membranes, or Bodies of Fibres cloſely united, either to bind down the Tendons, or give Origin to the Muſcles, or tye together ſuch Bones as have Motion.

BONES, are firm Parts to ſuſtain, and give ſhape to the Body.

CARTILAGES or Griſtles, are hard, elaſtick, ſmooth and inſenſible: Their Uſe is to cover the Ends of the Bones that have Motion, to prevent their attrition, *&c.*

What it is we call the HAIR and NAILS, is ſufficiently known; the former ſeems to be nouriſh'd from the *Materia Perſpirabilis*, and the latter from the *Reticulum Mucoſum* betwixt the *Cutis* and *Cuticula.*

ERRATA.

PAge 19. Line 25. for *Pollux* read *Pollex.* p. 44. l. 31. for *breſing* read *preſſing.* p. 86. l. 3. for *Coracobrachialis* read *Coracohyoideus.*

BOOK I.

CHAP. I.

Of the BONES *in general.*

Chapter I.

THE Uſe of the Bones, is, to give Shape and Stability to the Body; to be Levers for the Muſcles to act upon, and to defend the more noble Parts from external Injuries.

They are in an *Embryo* Membranous, 'till by degrees they acquire the hardneſs of a Cartilage, and laſt of all Bone: This change is not effected in all parts of the ſame Bone at once, but beginning from a middle part, ſhoots forth to the extremities.

Bones that are void of Motion, when they meet, preſs into each other and form Sutures, which ſoon diſappear in thoſe Bones that meet while they are ſoft, thô in ſome they are to be ſeen in the greateſt Age. But the Bones intended for Motion, are prevented from joyning in this manner, by the Cartilages, with which their parts that are oppos'd to each other, are fac'd.

The extremities of every Bone that is articulated for Motion, or that is not oppoſ'd to an other, is tip'd with an *Epiphyſis*, or additional Bone (as may be ſeen in a *Fœtus*) which helps to determine its growth and figure.

The Fibres of Bones are connected like thoſe of Vegetables, by ſmall Fibres running obliquely from one to another, but are not diſpos'd into *Laminæ*.

The texture of the Bones when firſt form'd, is univerſally looſe and ſpongy; but afterward they become in many places very compact, which reſults in ſome meaſure from the preſſure of the incumbent Parts. In flat Bones, where this preſſure is leaſt, the ſurfaces only are denſe, and the middle ſpongy; but where the preſſure is more conſiderable, the whole ſubſtance of the Bone is one denſe Body, or Table. The Cylindrical Bones being preſs'd moſt in their middle by the Bellies of the Muſcles, are there very denſe and ſtrong, while the extremities dilate into large and ſpongy Heads, which is more convenient for their Articulations, gives more room for the Origins, and inſertions of Muſcles, and makes their Line of Direction nearer to a right Angle with that of the Bone.

All the Bones, except ſo much of the Teeth as are out of the Sockets, are cover'd with a fine Membrane, upon the Head call'd *Pericranium*, elſewhere *Perioſteum*; this covers every part of each Bone, except where it is cover'd with a Cartilage, or where Muſcles or Ligaments ariſe or are inſerted: Its Uſe is to defend the incumbent Muſcles from being lacerated in their Actions.

Every Cylindrical Bone has a large middle Cavity containing an oily Marrow, and leſſer Cells towards their extremities, containing a bloody Marrow; every one of theſe Cells is lin'd with a fine Membrane. The Uſe of the Marrow is to ſupple the Fibres of the Bones that they may not grow too rigid and britle; and the Bones themſelves have an advantage from theſe Cavities; for it has been demonſtrated, that their Strength is increas'd by this Structure, as their Diameters.

CHAP. II.

Of the Articulation of the BONES.

WE ſhall not enumerate all the Names for Articulations which Writers have impos'd; but only mention thoſe which ſeem leaſt unneceſſary.

BONES are articulated either for manifeſt Motion, which is call'd *Diarthroſis*; or for obſcure, which is nam'd *Synchondroſis*; or for no Motion, which is nam'd *Synarthroſis*.

Diarthroſis.
Synchondroſis.
Synarthroſis

Enarthroſis. Ginglimus. DIARTHROSIS, is of two Sorts, *viz. Enarthroſis* and *Ginglimus*: The former is when the Head of one Bone is receiv'd into the Cavity of another, which if the Head is round, and the Cavity deep, is call'd *Cotile*; but if the one flat and the other ſhallow, *Glene*. The latter is, when a Bone both receives and is receiv'd, as thoſe of the *Spine*.

Cotile.

Glene.

Sutura. Gomphoſis. SYNARTHROSIS, is of two Sorts, *viz. Sutura* and *Gomphoſis*: The former is when Bones are mutually indented; the latter, when they are receiv'd like a Nail in Wood; of this Sort are the Teeth in their Sockets.

CHAP. III.

Of the SUTURES *and* BONES *of the* HEAD.

Suture.

THOSE *Sutures* which have proper Names, we will deſcribe; thoſe which have not, derive their Names from the Bones they ſurround, and are known by them.

SUTURA *Coronalis*, runs a-croſs the Head, and joyns, the *Frontal* to the *Parietal* Bones.

SUTURA *Sagittalis*, joyns the *Parietal* Bones; it begins at the *Os Occipitis*, and is continued to the *Os Frontis*; in Children down to the Noſe, the *Os Frontis* in them being two Bones, and ſometimes ſo in adult Bodies.

SUTURA *Lambdoidalis*, joyns the back-part of the two *Parietal* Bones to the upper part of the *Occipital* Bone: In this *Suture* we frequently obſerve ſmall Bones, call'd *Oſſa Triquatra*. Oſſa Triquatra

SUTURA *Squamoſa*, is the wraping of the upper part of the Temporal and Sphenoidal Bones (which laſt is not obſerv'd by Authors) over the lower Edges of the Parietal Bones.

SUTURA *Tranſverſalis*, joyns the lower Edge of the Frontal Bone to the *Oſſa Naſi*, *Maxilla Superior*, *Ungues*, *Plana*, *Sphænoides* and *Zygoma* or *Mali*.

The Scull being thus divided into many Bones, is neither ſo ſubject to Fractures, nor to have Fractures ſo far extended, as it wou'd have been, were it compos'd of one Bone only.

The Ancients not knowing that by this Formation the Bones Oſſefy'd, more conveniently imagin'd the *Sutures* were deſign'd for Perſpiration; and therefore preſcrib'd Fontenels upon them for Diſeaſes of the Brain. But doubtleſs, had this been their Uſe, the Longitudinal *Sinus* wou'd not have been plac'd under the Sagittal Suture, which they thought moſt concern'd in this Operation.

Ten of the Bones of the Head compoſe the *Cranium* to contain the Brain. Theſe we will firſt deſcribe.

OSSA BREGMATIS, are two large Bones almoſt equilateral, which compoſe the ſuperior and lateral Parts of the *Cranium* : On the inſide they are remarkably imprinted by the Arteries of the *Dura Mater*.

OS FRONTIS, makes the ſuperior and anterior part of the *Cranium*; its lower part compoſes the upper part of the Orbit of the Eye, in its inſide it bears impreſs'd the external figure of the two Hemiſpheres of the Brain; ſometimes it has a ſmall Spine near the *Os Ethmoides*, and ſometimes a *Sulcus*; immediately above the *Os Ethmoides*, in this Bone is a ſmall blind Hole through which runs a Vein into the beginning of the Longitudinal *Sinus* of the *Dura Mater*; under the Eye-brows in this Bone are two large *Sinuſes* wich lead into the Noſe, and on the upper edge of each Orbit, a ſmall Perforation, ſometimes only a Notch through which run Nerves and an Artery to the Forehead.

Spina.
Foramen.
Sinus.
Foramen.

OS ETHMOIDES, Is a ſmall Bone about two Inches in circumference, ſeated in the anterior part of the baſis of the Scull, being almoſt ſurrounded by the laſt deſcrib'd Bone; it is full of Holes like a Sieve. In its middle ariſes a large Proceſs nam'd *Criſta Galli*. Dr. *Douglaſs* is of Opinion, That

Foramina.
Criſta Galli.

all the *Laminæ* in the Noſe, belong to this Bone.

Os SPHENOIDES, is a very irregular Bone, ſeated in the middle of the Baſis of the *Cranium*, bounded on its fore-part by the Frontal and Ethmoidal Bones, laterally by the Parietal and Temporal Bones, and backwards by the *Petroſum* and Occipital Bone. In its inſide next the Brain is a Cavity, nam'd *Sella Turcica*, which is bounded by Four Proceſſes, call'd *Clinoides*. On the outſide of the Scull adjoyning to the Upper Jaw, are Two Proceſſes of this Bone on each ſide, nam'd *Pterygoides*, from which Proceſſes ariſe One on each ſide near the Palate, having no Name; over theſe are reflected the Tendons of the *Pterygoſtaphalini externi* Muſcles, and nearer towards the *Occiput*, between theſe and the Styloid Proceſſes of the *Oſſa Petroſa*, ariſe Two more, nam'd *Salpingoides*. Under the *Sella Turcica* in this Bone, is a *Sinus* which opens into the Noſe. At the inſide of the Baſis of the Two anterior Clinoid Proceſſes are Two round Holes, which are the First *Foramina* of the Scull; almoſt under theſe laterally are Two irregular Slits, nam'd *Foramina lacera*, or the Second *Foramina* of the Scull; and under theſe are Two round Holes, which are the Third *Foramina*; about half an Inch nearer the *Occiput*, are Two more of an oval figure, which are the Fourth *Foramina*; and a Straw's breadth farther Two, call'd the Fifth *Foramina*.

Sella Turcica.
Proc. Clinoides.
Proc. Pterygoides.
Proc. Innominatus.
Proc. Salpingoides.
Sin. Sphenoidalis.
For. Prima.
For. Sec. vel lacera.
For. Tertia.
For. Quarta.

Proc. Mamil.
Proc. Jugale.

OSSA TEMPORIS, are ſituated below the Parietal Bones, at the middle and lower part of the ſide of the *Cranium*; they have at their back-part One large Proceſs, call'd *Mammillaris*, and from the lower and middle-part a Proceſs which joyns the *Os Mali*, nam'd *Jugale* or *Zygoma*.

Proc. Styliformis.
For. Sexta.
For. Septima.

OSSA PETROSA, lie between the former Bones and the Occipital, or are truly Portions of the former Bones, being never found ſeparate in adult Bodies. They have each on their outſide One long ſlender Proceſs, call'd *Styliformis*, and from the ſide of this Proceſs a *Foramen*, which runs obliquely forwards into the Scull, theſe are the Sixth *Foramina*; and One blind *Foramen* in the inſide of the Scull leading to the Organs of Hearing, which are the Seventh *Foramina*. (For what remains of this Bone, See Chap. *Of the Organs of Hearing*).

Foramina Innominata.

Between the anterior part of each of theſe Bones and the ſides of the *Os Sphenoides*, is a *Foramen*, not commonly obſerv'd, thro' which run large Veins from the Circular *Sinus* into the internal *Jugulares*.

For. Octava.

Between the laſt deſcrib'd Bone and the following Bone, are Two large Holes, which are the Eighth *Foramina*. To theſe we may add another very ſmall One on each ſide, thro' which runs an Artery to the *Dura Mater* of the *Cerebellum*.

OS OCCIPITIS, makes all the back-part of the Scull, it is bounded by the Sphenoidal, Temporal, Petroſal, and Parietal Bones; it has two ſmall *Apophyſes*, by which it is articulated to the Spine; near thoſe *Apophyſes* laterally, are two ſmall *Foramina*, which are the Ninth of the Scull; and between theſe the great or Tenth *Foramen*. In the inſide of this Bone is a crucial Spine impreſs'd by the Longitudinal and Lateral *Sinuſes*; oppoſite to the middle of this Spine, in many Bodies, is an *Apophyſis*, and from that down to the great *Foramen*, a thin Spine.

Apophyſes

For. Nona

For. decimum.

Spina.

Apophyſes

Spina.

We have obſerv'd in moſt Sculls, a *Foramen* behind each *Apophyſis* of the Occipital Bone to the Eighth *Foramina*; through theſe paſs a *Sinus* from the lateral Sinuſes to the external cervical Veins: By means of this Communication, as in all other Communications of the Sinuſes, the Blood paſſes from thoſe that happen to be ſurcharg'd by any particular Poſture of the Head, into thoſe that from the ſame Poſture wou'd elſe have been almoſt empty. Such Sculls as want theſe *Foramina*, have a *Sinus* for the ſame purpoſe within the Scull.

Foramina.

The remaining Bones of the Head compoſe the Face, Orbits of the Eyes, and the Jaws.

OSSA NASI, are ſmall oblong Bones making the upper part of the Noſe.

OSSA MALORUM, Theſe Bones compoſe the Cheeks, and the anterior lower and outer part of the Orbits of the Eyes, They have each a proceſs which joyns the *Proceſſus Jugales* of the Temporal Bones.

Theſe Joynings of the Proceſſes are by ſome Authors call'd *Oſſa Jugalia.*

OSSA UNGUES, are ſmall Bones about as large as Thumb Nails, ſeated immediately below the *Os Frontis* towards the Noſe in the Orbit of the Eye, whoſe interior and inner part they help to Compoſe. They Foramina. have each a *Foramen* as large as a ſmall Gooſe quill leading into the Noſe Through which paſs Lymph or any extraneous Bodies from the Eyes into the Noſe. Sometimes theſe Foramens are between theſe Bones and the Superior *Maxilla.*

OSSA PLANA, are ſeated immediately beyond the foregoing Bones in the Orbit, and are near thrice as big.

MAXILLA SUPERIOR, is always deſcrib'd ſingle, though it is manifeſtly divided by a Suture which we have never ſeen obliterated. It runs up with two Proceſſes to the *Os Frontis* between the *Oſſa Naſi* and *Ungues*; It's upper and outer part makes the lower parts of the Orbit of the Eyes, it's lower ſide all that part of the Face under the Cheeks, Eyes and Noſe to the Mouth, and two Thirds of the Roof of the Mouth; a little below the Orbits of the Eyes in this Bone are Foramina. two Foramens, and behind the *Dentes Inciſorei* one more which divides into two, as it opens into the Noſe, one on each ſide the *Septum Naſi.* Between the Poſterior grinding

Chapter III.

Antra Maxil. ſuper. Alveoli.

ing Teeth and the Orbit of the Eye are two great Sinuſes, call'd *Antra Maxillæ ſuperioris*, they open into the Noſe, and in the lower Edge of this Jaw are the *Alveoli* for the Teeth.

We have ſeen Impoſtumations from rotten Teeth in theſe Cavities, which have been cur'd by Drawing ſome of the Grinding Teeth, and by making a Perforation into it through their Sockets. Mr. *Cowper* has admirably deſcrib'd this Caſe.

Foramina.

OSSA PALATI, are two ſmall Bones that make the back part of the Roof of the Mouth. Between theſe and the Pterygoid proceſſes of the Sphenoidal Bone are two ſmall Foramina, through which Arteries and Nerves paſs to the Palate.

OS VOMER, is ſeated between the Bones of the Palate, and the Sphenoidal Bone dividing the hind part of the Noſe.

Septum Naſi.

OS SPONGIOSUM, is often treated as a diſtinct Bone, thô it is only the ſpongy *Laminæ* of the *Ethmoides*, *Ungues*, *Plana* and *Maxilla Superior*, but chiefly the *Ethmoides*. To this we add a ſpongy part, produced from the Vomer forwards to the middle Cartilage of the Noſe, which with the Cartilage makes the *Septum Naſi*.

Pro. Conduloides. Pro. Coronales. Pro. Innominatus.

MAXILLA INFERIOR, is Articulated to the Temporal Bones, by two proceſſes Nam'd *Condyloides*, near theſe ariſe two more, very acute, call'd *Coronales*, and at the inſide of the Chin a ſmall rough *Pro-*

ceſſus Innominatus. In the inſide of this Bone under each *Proceſſus Coronalis,* is a large *Foramen* which runs under the Teeth through the Bone and paſſes out at the Chin, and in the upper Edge of this Jaw are the *Alveoli* for the Teeth.

Foramina Alveoli.

DENTES, the Teeth ſeldom exceed Sixteen in each Jaw, the Four firſt in each are call'd *Inciſorei,* the two next *Canini,* and all the reſt *Molares,* the Four laſt of theſe have obtain'd the proper Name of *Dentes Sapientiæ,* becauſe they do not appear 'till Men arrive at Years of Diſcretion. The *Inciſorei* and *Canini* in each Jaw have only one ſingle Root, but the *Molares* more, the Eight firſt, Two; and the reſt, ſome Three, ſome Four, eſpecially in the upper Jaw; each of theſe Fangs or Roots have a *Foramen,* through which paſs an Artery Vein and Nerve, which are expanded in a fine Membrane lining a Cavity in each Root of a Tooth. This Membrane is the Seat of the Tooth-ach.

Inciſorei. Canini. Molares. Sapientiæ. Foramina. Vaſa Sinus. Membrana.

The Teeth of Men caſt off (and not change intirely) e'er they arrive at Puberty, the ſucceeding ones always riſing larger than the former, the Jaws encreaſing faſter than the Teeth, muſt otherwiſe of neceſſity have left *Chaſms* between 'em, as we may obſerve there are in the Mouths of Brutes.

Whenever an entire Tooth is drawn, the Socket cloſes, and none ſucceeds.

We extirpated a Tumor from a Woman's Cheek about as large as a Hen's Egg, which was judg'd Schirous; but when we cut near the Center of its Baſis, there came out a large quantity of Lympid Matter, and upon ſearching with a Probe, found the *Os Mali*, part of both Jaws, and the *Os Sphœnoides* at the Baſis of the Scull, *Caries*, which being impracticable to exfoliate, we endeavour'd to heal the Wound, which we did to a very ſmall compaſs, but cou'd not quite becauſe of the Gleet which came from the Bones, 'till we made a paſſage from the inſide of the Mouth to it, and turn'd the Matter that way, and after about Three Months this Paſſage alſo clos'd, and then the Cavity began to fill again, and in two Years time grew as large as before. Then we let the Matter out through the Mouth, and now ſhe ſeems to be in the ſame Condition that ſhe was in after the former Operation. When we conſider this, and the many Bones we have found *Caries* in dead Bodies, without any mark of Diſorder in the fleſhy Parts, ſome of which we have known the Perſons when living have never complain'd of, we cannot but think (though it is the beſt Practice if it can be done ſafely to exfoliate a *Caries*) that there is not ſo great neceſſity of doing it, as is commonly believ'd.

BOOK I.

CHAP. IV.

Of the BONES *of the* TRUNK.

THE Bones of the Trunk are thoſe which compoſe the Spine or Chain of Bones from the Head down to the Rump, the Ribs and *Sternum.*

THE SPINE, Is compos'd of Twenty Four *Vertebræ*, beſides thoſe of the *Os Sacrum* and *Coccygis*; Seven belong to the Neck, the Firſt of which is call'd *Atlas*, the Second *Dentata*, from a proceſs in that Bone bearing the ſame Name; Twelve to the Back, Five to the Loyns; The *Os Sacrum* is ſometimes Five, ſometimes Six Bones, and the *Os Coccygis* Four. If this Chain had been compos'd of fewer Bones, they muſt have either not been capable of bending ſo much as they do, or have bent at leſs obtuſe Angles, which wou'd have preſs'd the Spinal Marrow.

Atlas. Dentata. Pro. Dentatus.

In all theſe *Vertebræ*, except the firſt, is a middle Anterior Spongy Body, by which they are all firmly articulated with a very ſtrong intervening Ligament, and from the middle of the hind-part ſtands a Proceſs from each, nam'd *Spinalis*, and from every one of the *Vertebræ*, a Proceſs on each ſide, call'd Tranſverſalis, and two ſuperior, and two inferior ſhort ones by which the back-part of

Corp. Spongioſum.

Proc. Spinales. Proc. Tranſverſales.

of the *Vertebræ* are articulated, nam'd *Obliqui, Superiores*, and *Inferiores*. Chapter III.

Proc. Obliqui.

Corpora Spongioſa.

The anterior part of the Seven *Vertebræ* of the Neck and Two ſuperior of the Back are flat forwards, the Third and Fourth of the Back very acute, to give way to the Veſſels of the *Lungs* and *Heart*, and inclin'd to the Right Side, which makes that Side of the Body Naturally ſtrongeſt.

Proceſſus. Spinales.,

The Spinal Proceſſes of the ſecond, third, fourth and fifth *Vertebræ* of the Neck are forked, the two laſt of the Neck long and horizontal, the three or four ſuperior Ones of the Back like them, only a little declining, the middle ones of the Back run obliquely downwards, and the Proceſſes of the remaining *Vertebræ* become ſucceſſively thicker, ſtronger, and leſs declining, thoſe of the Back being Horizontal, like the laſt of the Neck.

Proceſſus Tranſverſales.

The tranſverſe Proceſſes of the *Vertebræ* of the Neck are perforated; the Eight or Nine Superior Ones of the Back, receive the ſuperior Ribs; and the reſt, with thoſe of the Loins, ſerve only for inſertion of Muſcles.

The *Os Sacrum* has two ſuperior oblique Proceſſes, ſome ſmall Spinal Proceſſes, and two *Foramina* in each Interſtice of the Bones it is compos'd of, both before and behind.

The *Os Coccygis* has none of theſe Parts.

Through every Bone of the Spine, the *Os Coccygis* excepted, is a large *Foramen*, in which is contain'd the *Medulla Spinalis*; and laterally in all the Interſtices of the *Vertebræ* is a large Hole for the Nerves to paſs out.

'Tis worth Conſidering, the wonderful Proviſion *Nature* has made to prevent Luxations in this Chain of Bones. In the Neck the oblique Proceſſes of the receiv'd Bone are wrap'd over thoſe of the receiving Bone, which forbids their Luxating forwards, and a ſmall *Apophyſis* of the body of the ſame Bone, in like manner ſecures them from ſliping backwards, and an *Apophyſis* on each ſide of the body of the receiving Bone, hinders them from ſlipping to either ſide. The *Vertebræ* of the Back are hinder'd from Diſlocation forwards by the ſame Proviſion with thoſe of the Neck; and from Luxating backwards by the Ribs which are faſten'd to the tranſverſe Proceſſes of the inferior *Vertebræ*, and againſt the back-part of the body of the next ſuperior they alſo hinder 'em from moving to either ſide; but the Ribs at the two or three laſt *Vertebræ* of the Back are not fix'd to the tranſverſe Proceſſes, and therefore it is that Luxations are moſt frequently ſeen in this Part; but the *Vertebræ* of the Loins are receiv'd into deep Cavities, and are ty'd with much ſtronger Ligaments for their ſecurity.

The RIBS are Twelve in number on each Side; the Seven uppermoſt are call'd True Ribs, becauſe their Cartilages reach the *Sternum*; and the Five loweſt are call'd Baſtard Ribs. They are articulated to the Twelve *Vertebræ* of the Back.

STERNUM, Or Breaſt-bone, is generally made up of Three Bones, to this the True Ribs are articulated by their Cartilages.

OS HYOIDES, is a ſmall Bone at the Root of the Tongue; it ſerves only for Muſcles to ariſe from, and be inſerted into.

We have ſeldom found fewer than Four-and-twenty *Vertebræ* in the Spine, beſides the *Os Sacrum*, but often more; ſometimes Thirteen of the Back, with as many Ribs of a-ſide; and ſometimes Six in the Loyns: And in ſome Bodies Two Ribs from the firſt *Vertebra* of the Loyns; but then it has always wanted tranſverſe Proceſſes.

CHAP. V.

Of the BONES *of the Upper Limb.*

CLAVICULA, is of the figure of the Italick *ſ*, one end is articulated to the *Sternum*, and the other to the *Proceſſus Acromion* of the *Scapula*; it ſerves to ſuſtain the *Scapula*, and to determine its Motions.

SCAPULA, Has to be obſerv'd in it, the *Acetabulum*, which is a ſhallow Cavity to receive the *Os Humeri*: A large Spine from whoſe fore-part ſtands a Proceſs call'd *Acromion*,

Acetabulum.
Spina.

Acromion.
Coracoides.
Coſta ſup.
Coſta infe.
Baſis.

mion, and another Proceſs from the fore-part of the upper Edge of the *Scapula* nam'd *Coracoides*, its upper Edge is nam'd *Coſta ſuperior*; and its lower one *Coſta inferior*; and the poſterior Edge its *Baſis*.

It is no very uncommon Accident, to have the *Proceſſus Acromion* broke, and then the Arm can never after be rais'd to Advantage; for no Care of the moſt Skilful Surgeon can reduce ſuch a Fracture; for the Deltoid Muſcle will draw the Ends of the broken Proceſs aſunder, and will itſelf want a fix'd Point to act from.

Caput.
Apophyſes.
Apoph. ex.
Apoph. int.
Sinus ant.
Sinus poſt.

Os Humeri, This Bone has at its upper End a round Head for its Articulation, and near that an *Apophyſes*, which is ſomewhat divided by a *Sulcus*, in which runs a Tendon of the *Biceps flexor Cubiti*. At its lower End are two *Apophyſes*, the one exterior, and the other interior. Between theſe *Apophyſes* and the fore-part of the Bone is a ſmall *Sinus*, which receives a Protuberance of the *Ulna*, and a large and deep one, which receives the *Olecranon* of the *Ulna*.

Olecranon.
Proceſ. ant.
Proceſ. Styloides.

Ulna, At its Articulation to the former Bone has Two Proceſſes, One large and thick nam'd *Olecranon*, and One ſmall one nam'd *Proceſſus anterior*, and at the lower end of this Bone is a ſmall Proceſs nam'd *Styloides*.

When about two Inches or leſs of this Bone is broke off at the lower End, it is ſcarce poſſible to raiſe it into its Natural ſituation 'till the Arm is turn'd prone; becauſe the Tendon of the *Tenſor Ulnaris* rides over it and preſſes it forward.

Radius, Is receiv'd at the upper end by the *Os Humeri* and *Ulna*, at its lower end it rceeives the *Ulna* and *Carpus*, by its turning upon the *Ulna*, is perform'd the Prone and Supine Motions of the Arm; about an Inch below its upper end is an extuberance for the inſertion of the *Biceps* Muſcle. Tuberculum.

Carpus, is compos'd of Eight Bones of irregular figure.; they are diſtinguiſh'd into Four of the firſt Order, and Four of the ſecond. The Two firſt of the firſt Order are articulated with the *Radius*, the firſt of he ſecond Order is articulated to the Thumb, and the remaining Three to the Metacarpal Bones. The inſide of theſe Bones leave a ſemilunar Cavity for the Tendons of the Muſcles of the Thumb and Fingers to paſs through. Prim. Ord. Secund. Ord.

Metacarpus, is compos'd of Four Bones.

Pollux, is made of Three Bones.

Digiti, are each compos'd of Three Bones. For the Figure of theſe, we refer you to the Table, which will give a better Idea of them than a verbal Deſcription.

CHAP. VI.

Of the BONES *of the lower Limb.*

Ilium.
Os Pubis.
Iſchium.
Spina.
Proc. Innominatus.
Proc. Acutus.
Proc. Obtuſus.
Acetabulum.
Foramen.

OS INNOMINATUM, is, before Puberty, compos'd of Three Bones; the uppermoſt is nam'd *Ilium*, the lower and anterior *Os Pubis*, the lower and poſterior *Os Iſchii*. The under Edge of the *Ilium* is call'd its Spine, the anterior part of the Spine is its *Apex*, and lower than this is the *Proceſſus Innominatus*. The *Iſchium* has Two Proceſſes, the one call'd *Acutus*, the other *Obtuſus*. In the Center of theſe Bones is the *Acetabulum* or Socket to receive the Thigh Bone, and between the *Iſchium* and *Pubes* the *Foramen*.

Trochanter maj.
Trochan. min.
Cervix.
Linea Aſp.
Apoph. ext.
Apoph. int.

OS FEMORIS, at its upper End has a round Head, which is receiv'd into the *Acetabulum* of the *Os Innominatum* A ſmall diſtance from this are Two Proceſſes nam'd *Trochanter major*, and *Trochanter minor*. The Space between theſe Proceſſes and the Head of the Bone, is call'd its Neck, and from the leſſer *Trochanter* down the back-part of this Bone 'till within Four Inches of the End, is a Ridge call'd *Linea Aſpera*. At the lower End of this Bone are Two *Apophyſes*, One exterior, and One interior.

In Two Bodies which I have Diſſected, I have found this Bone broke at its Neck, and by that Means the Limb ſhorten'd, and the Caſe miſtaken for a Luxation of the Hip. When we conſider the depth of this Articulation, and the wonderful ſtrength both of the Muſcles and Ligaments, we cannot but ſuſpect that this Bone is much oftner ſo broke, than out.

It often happens, that from a flux of Humours upon the Hip, this Joynt appears diſlocated; for when it is attended with Pain, the Muſcles contracting alter the poſture of the Limb, and make it appear ſhorter, as the Limb which is lifted from the Ground is when we ſtand on One Leg: But if the Fluxion is without Pain, the Muſcles relax, and the Limb falls into the ſame figure that the Limb is in which we ſtand on in that Caſe, and appears longer. Therefore the certain Way to know if this Joynt is out, or broke near the Joynt, is by Meaſuring firſt the well Limb with a Line drawn from the *Os Ilii* over the great *Trochanter* to the Knee, allowing for any Swelling, and to apply the ſame Meaſure in the ſame manner to the other Limb, it being put in the ſame poſture, which will be known by the Angle at the *Trochanter* being the ſame. Then if the Diſtance from the *Os Ilii* to the Knee be not the ſame in both, the Bone is moſt certainly broke, or out.

PATELLA, is ſeated upon the Joynt of the Knee; its Uſe is for the Extenſors of the *Tibia* to be inſerted into, leaſt paſſing over that Joynt they might be too much expos'd to external Injuries; it alſo gives an advantage to the Muſcles by removing their Direction farther from the Center of Motion.

Malleolus interior.

TIBIA, has nothing to be remark'd, but a Proceſs at the lower End, which makes the inner Ankle, and another at its upper End for Ligaments to be inſerted into.

Apendix ſu.

Apendix inf.

FIBULA, has no ſhare in ſupporting the Body, but ſerves only to ſtrengthen the Articulation of the *Tibia* with the *Tarſus*, and for Muſcles to be inſerted into, and ariſe from. The upper End of this Bone is call'd *Appendix ſuperior*; and the lower End, which makes the outer Ankle, *Apendix inferior*.

TARSUS, is made up of Seven Bones, which are call'd *Aſtragalus*, *Os Calcis*, *Naviculare*, *Cuboides*, *Cuneiforme majus*, *Medium*, *Minimum*.

METATARSUS, is compos'd of Four Bones.

POLLEX PEDIS, is compos'd of Three Bones.

DIGITI PEDIS, each is compos'd of Three Bones, but the Two laſt of the little Toes often grow into One.

For the Figure of theſe Bones, we refer you to the Table of 'em, as we have done in the Hand.

OSSA SESAMOIDEA, are ſaid to be found to the number of Forty-eight: But we commonly find no more in the Feet than Two under the Ball of each great Toe;

and in the Hands ſometimes Two very ſmall ones at the middle Joynt of each Thumb; and ſometimes One at the lower End of each Thigh-bone at the beginning of the *Plantaris* Muſcle. Their Uſe is the ſame with the *Patella.*

We find alſo in ſome Bodies the little Cartilages at the receiving Ends Oſſefy'd of the Bones of the Fingers; which we ſuppoſe thoſe Authors have reckon'd among the *Seſamoid* Bones; which, ſay they, are found to the number of Forty-eight.

CHAP. VII.

Of the CARTILAGES.

EVERY Part of a Bone which is articulated to another Bone for Motion, the Ribs and Bodies of the *Vertebræ* excepted, is cover'd or lin'd with a Cartilage, as far as it moves upon, or is mov'd upon by another Bone in any Action; for Cartilage being ſmoother and ſofter than Bone, both renders the Motions more eaſy than they wou'd have been, and prevents the Bones wearing each other in their Actions. Theſe Cartilages in the largeſt Joynts, are as thick as a Shilling, and in the ſmalleſt, as thin as Paper.

In each Articulation of the Lower Jaw, there is a looſe Cartilage upon which the Condyloid Proceſs rides on one ſide, while the Jaw is mov'd to the other; and the Two Proceſſes being thus rais'd at once, the Jaw is thruſt forwards.

In the Articulation of the Knee there are two ſemilunary Cartilages whoſe outer edges are much thicker than the inner; they ſerve to render the Cavities upon the upper part of the *Tibia* deeper,and the frictions of the Bones leſs; being upon a double ſurface. This Contrivance is made uſe of by Mechanics in large Screws and Hinges that bear great Weights.

There are other Cartilages which ſerve to give ſhape to Parts. Of this Sort are the Ciliary Cartilages at the Edges of the Eye-lids, the Cartilages of the outer Ears, and that which compoſes the lower part of the Noſe. Ciliaris.

The Ribs have Cartilages of a conſiderable length, which articulate the Seven uppermoſt, and ſometimes Eight on each ſide to the *Sternum*; which Cartilages being very pliable, ſuffer the Ribs to move eaſily in Reſpiration, and the Body to twiſt or bend on either ſide without difficulty. But the Cartilages of the lower Ribs do not reach the *Sternum*.

Cartilago Enſiformis. The STERNUM, has a Cartilage at its lower End call'd *Enſiformis*.

There are other Cartilages which compoſe the *Larynx* and *Aſpera Arteria*. The

Larynx

Chapter VIII.

Thyroides.
Arytænoides.
Epiglitis.
Cricoides.

Larynx is form'd of Five: The foremoſt is like a Sadle, but is nam'd *Thyroides*, behind this are Two call'd *Arytænoides*; they compoſe the *Rimula* of the *Larynx*. Over theſe is the *Epiglottis* to cover the *Rimula* while the Aliment paſſes to the *Pharynx*; and under them One like a Seal Ring nam'd *Cricoides*. The Cartilages which compoſe the *Aſpera Arteria*, or remaining part of the Wind-pipe, are not quite Annular, but connected by Membranes at their back-part, to give way to the Aliment deſcending thro' the *Pharynx*.

There are other Parts that Authors call Cartilages, which we rather chuſe to rank with the Ligaments: And therefore will Deſcribe them in that Chapter, as thoſe between the bodies of the *Vertebræ*, &c.

We have ſeveral times found ſupernumerary Cartilages from the *Sternum*, running between the Ribs; and frequently the *Cartilago Enſiformis* Bifid.

CHAP. VIII.

Of the LIGAMENTS.

EVERY Bone that is articulated to another for Motion, is ty'd to that it moves upon by a Ligament.

The Bones of the Limbs that move to all Sides, have Ligaments like Purſes, which ariſe near the Edges of the Sockets of the receiving Bones, and are inſerted all round the receiv'd Bones a little below their Heads.

Thoſe Bones whoſe Articulations admit only of Flexion and Extenſion, differ from the former in this; That their Ligaments are ſhorter and ſtronger at their ſides, and thiner backwards and forwards.

At the upper part of the Articulation of the *Os Femoris* and *Os Innominatum*, is a ſtrong Ligament (diſcover'd by Dr. *Douglaſs*) of great Conſequence, it contributing very much to preſerve that Joynt from being luxated by the weight of the Body. And from the lower Edge of the *Acetabulum* of the *Os Innominatum*, runs a Ligament to the middle of the Head of the *Os Femoris*, call'd *Teres*, whoſe Uſe is to prevent the *Os Femoris* from being luxated upwards, or from being thrown out forwards by its own *Rotator* Muſcles, and to preſs the Gland in the bottom of the *Acetabulum*. Lig. Teres.

Towards the great *Foramen* of the *Oſſa Innominata* the *Acetabulum* has a deep Notch, from one ſide of which to the other, runs a Ligament, which we have ſeen Oſſefy'd. Such a Ligament there is alſo running from one Proceſs of the *Scapula* to the other, which renders the *Acetabulum Scapulæ* more complete.

Chapter VIII.

The Bodies of the *Vertebræ*, the *Proceſſus Dentatus* of the ſecond *Vertebra* to the Head, the Ribs to the Spine, and the *Oſſa Innominata*, are all articulated by intervening Ligaments, commonly call'd Cartilages.

The Proceſs of the ſecond *Vertebra*, is likewiſe reſtrain'd by another Ligament running from one ſide of the firſt *Vertebra* to the other within its great *Foramen*, that the Spinal Marrow might not be injur'd by the Motions of the Head; and when either this Ligament or Proceſs is broke, it makes that ſort of broken Neck which is attended with ſudden Death.

The Bones of the *Carpus* and *Tarſus* are ty'd together by Ligaments running promiſcuouſly upon their Surfaces from one to another.

Lig. Tranſverſale Carpi.

There is to the *Carpus*, a ſtrong Ligament which runs from the Fifth Bone to the Eighth and Proceſs of the Fourth Bone. The proper Uſe of this is, to bind down the Flexors of the Fingers.

The *Os Hyoides* to the *Proceſſus Styliformis* of the *Os Petroſum*; the *Patella* to the *Tibia*, and the Seſamoid Bones in their places, are all ty'd by Ligaments.

In ſome Bodies, we have obſerv'd a Ligament running from the Lower Jaw to the *Proceſſus Styliformis* of the *Os Petroſum*; but this is very rare.

From the Edge of the *Ilium* to that of the *Os Pubis*, runs a Ligament to cover the Iliack Veſſels as they deſcend to the Thigh: Under this Ligament, together with the Veſſels, we have twice met with a Rupture from the *Abdomen* into the anterior part of the Thigh immediately below the Groin. This Caſe is well worth the Obſervation of Surgeons; becauſe Opening ſuch a *Tumor*, may be of bad Conſequence.

The Tendons of all the Muſcles that are not involv'd in Fat, are either ty'd down to the Bones they paſs over, by Ligaments which contain a lubricating *Mucus*; or have communications with the Joynt they move: As has been curiouſly obſerv'd by Dr. *Douglaſs*. The Uſe of theſe Ligaments is to confine them to their proper Directions, and contain the *Mucus* that lubricates their Surfaces, to make their Motions more eaſy.

From the *Tibia* to the *Fibula*, and from the *Ulna* to the *Radius*, are tranſverſe Ligaments which help to keep theſe Bones together, and give Origins to a great many Muſcles. Another there is of this Sort in the great *Foramen* of the *Os Innominatum*; and One between the *Os Sacrum* and Proceſſes of the *Os Iſchii*; and ſome more in the Body, too ſmall to have a particular Account given of 'em in this Place.

Authors agree, That the Ligaments are inſenſible; and give for their Reaſon, That they wou'd elſe be injur'd by ordinary Motions. But the ALL-WISE is a better Architect!

tect! For none of 'em, except thoſe which lie between the Bones, are ſubject to Attrition; and thoſe they have call'd Cartilages. We will not pretend to ſay, That theſe laſt are ſenſible; but the other we have Daily Experience are ſuſceptible of very acute Pains, there being not any thing our Patients more grievouſly complain of, than collections of Matter within theſe Parts, or ſharp Medicines apply'd to 'em when laid bare.

CHAP. IX.

Of the Lubricating GLANDS *of the Joynts.*

EVERY Joynt, where the Bones are fac'd with a Cartilage, is furniſh'd with ſmall Glands which ſeparate a mucilaginous Matter for the lubricating of the Ends of the Bones, that they may move eaſily upon one another; and that there may not be too great expence of this neceſſary Fluid, it is contain'd in the inveſting Ligaments, which for this very reaſon are no where divided, except to communicate with the Ligaments of Tendons.

Theſe Glands are generally ſeated near the inſertions of the Ligaments, that they may

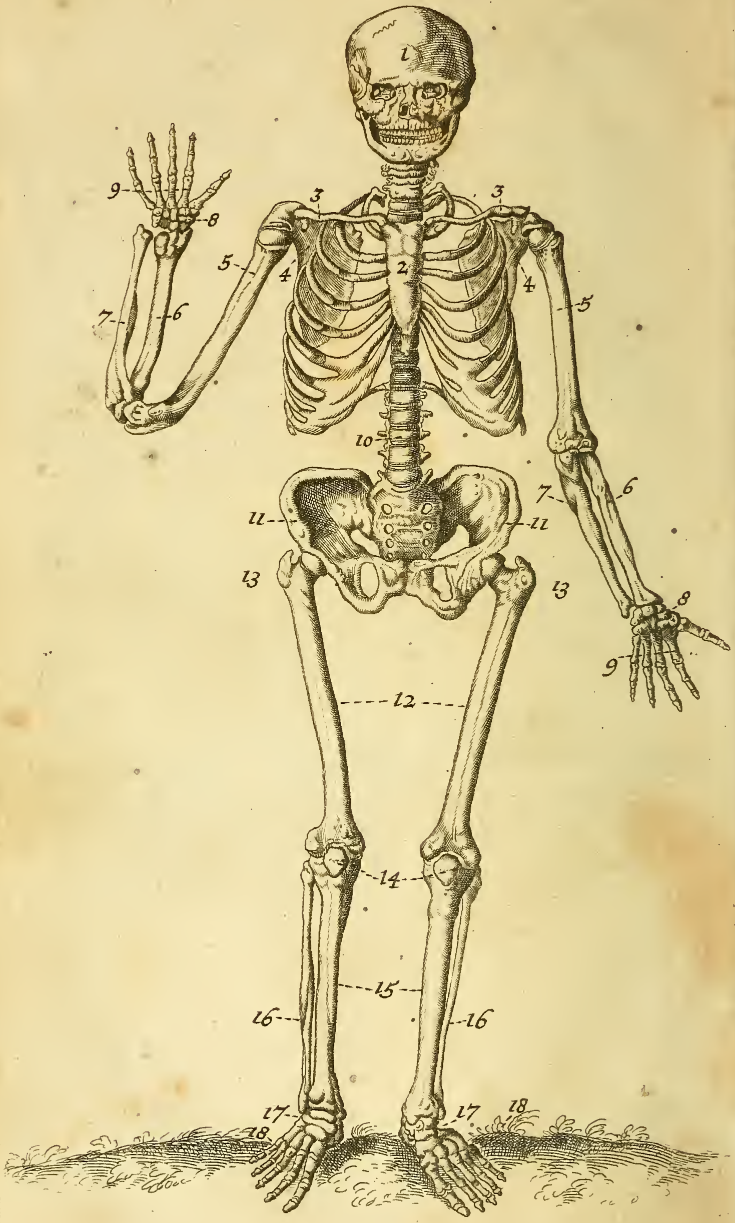
BOOK I.

may be compreſs'd by them when the Joynts are in Motion, which is a proper time to have their fluid preſs'd out.

There is One large Gland of this Sort, ſeated in a *Sinus* at the bottom of the *Acetabulum* of the *Os Innominatum*, which is compreſs'd by the *Ligamentum Teres.* The other Glands are ſo ſmall, even in the largeſt Joynts, that they can ſcarce be diſcern'd with the naked Eye; but with a Microſcope they may be ſeen in great plenty in the Place before mention'd.

When from violent Bruiſes, or any other Cauſe, theſe Glands are Ulcerated, they throw off a corroſive Matter, which erodes the Cartilages of the Bones 'till it inſinuates itſelf into their ſpongy Heads, and renders their whole Subſtance *Caries.* When this Evil happens to the Hip, it always makes its way thro' the Ligament, becauſe the Socket in that Joynt is depending; and then it gets under the *Gluteus Maximus* to the outſide of the Thigh under the flat Tendon of the *Faſcialis* Muſcle. Theſe Caſes are incurable.

TAB. I.



Sutton Nicholls sculp

TABLE I.

The Fore View of a SCELETON: From Dr. *Douglaſs.*

1 *OS Frontis.*

2 *Oſſa Pectoris.*

3 *Clavicula.*

4 *Scapula.*

5 *Os Humeri.*

6 *Radius.*

7 *Vlna.*

8 *Carpus.*

9 *Metacarpus.*

10 *Spina Dorſi.*

11 *Os Innominatum*

12 *Os Femoris.*

13 *Trochanter major.*

14 *Patella.*

15 *Tibia.*

16 *Fibula.*

17 *Tarſus.*

18 *Metatarſus.*

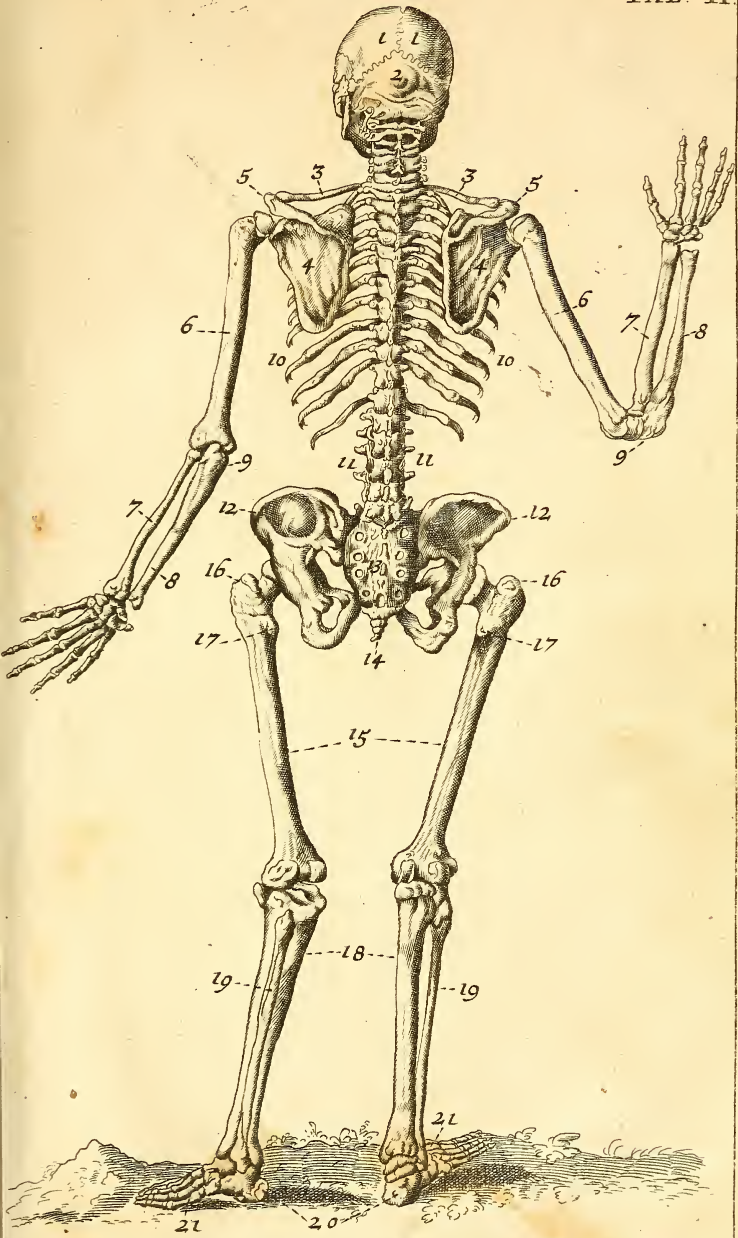
Table II.

TABLE. II.

The Back View of a SCELETON: From Dr. *Douglaſs*.

1 *Os Bregmatis.*
2 *Os Occipitis.*
3 *Clavicula.*
4 *Scapula.*
5 *Proceſſus Acromion.*
6 *Os Humeri.*
7 *Radius.*
8 *Ulna.*
9 *Olecranon.*
10 *Coſtæ.*
11 *Spina.*
12 *Os Innominatum.*
13 *Os Sacrum.*
14 *Os Coccygis.*
15 *Os Femoris.*
16 *Trochanter major.*
17 *Trochanter minor.*
18 *Tibia.*
19 *Fibula.*
20 os Calcis
21 os metatarsi

Tab. II.



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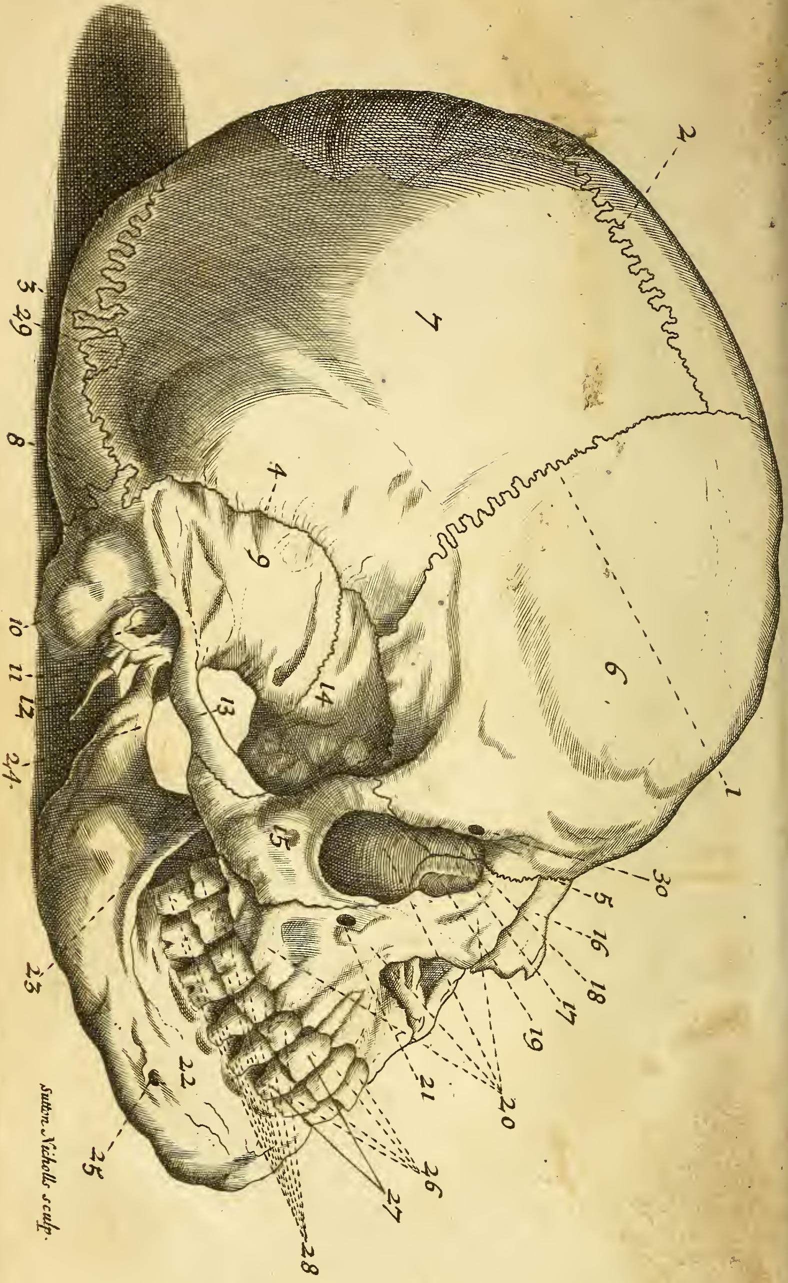


Sutton Nicholls sculp.

TABLE III.

Table III.

The BONES of the HEAD: From Dr. *Douglaſs*.

1 *Sutura Coronalis.*
2 *Sutura Sagittalis.*
3 *Sutura Lambdoidalis.*
4 *Sutura Squamoſa.*
5 *Sutura Tranſverſalis.*
6 *Os Frontis.*
7 *Os Bregmatis.*
8 *Os Occipitis.*
9 *Os Temporis.*
10 *Proceſſus Mammillaris.*
11 *Meatus Auditorius.*
12 *Proceſſus Styliformis.*
13 *Proceſſus Jugalis.*
14 *Os Sphœnoides.*
15 *Os Mali.*
16 *Os Naſi.*
17 *Os Unguis.*
18 *Os Planum.*
19 *Ductus ad Naſum.*
20 *Maxilla ſuperior.*
21 *Foramen Maxillæ ſuperioris.*
22 *Maxilla inferior.*
23 *Proceſſus Coronalis.*
24 *Proceſſus Condyloides.*
25 *Foramen.*
26 *Dentes Inciſorii.*
27 *Dentes Canini.*
28 *Dentes Molares.*

TABLE IV.

A, The Fore View of the SCULL.

1 *Sutura Coronalis.*
2 *Sutura Sagittalis.*
3 *Sutura Squamoſa.*
4 *Sutura Sphœnoidalis.*
5 *Os Frontis.*
6 *Os Bregmatis.*
7 *Os Mali.*
8 *Os Naſi.*
9 *Maxilla ſuperior.*

B, A View of the *Baſis* of the SCULL.

1 *Sutura Lambdoidalis.*
2 *Os Occipitis.*
3 *Os Temporis.*
4 *Proceſſus Mammillaris.*
5 *Proceſſus Styloides.*
6 *Proceſſus Jugalis.*
7 *Os Mali.*
8 *Os Palati.*
9 *Maxilla ſuperior.*
10 *Proceſſus Pterygoides.*

C, The *Os Hyoides*,

1 *Baſis.*
2 *Cornua.*

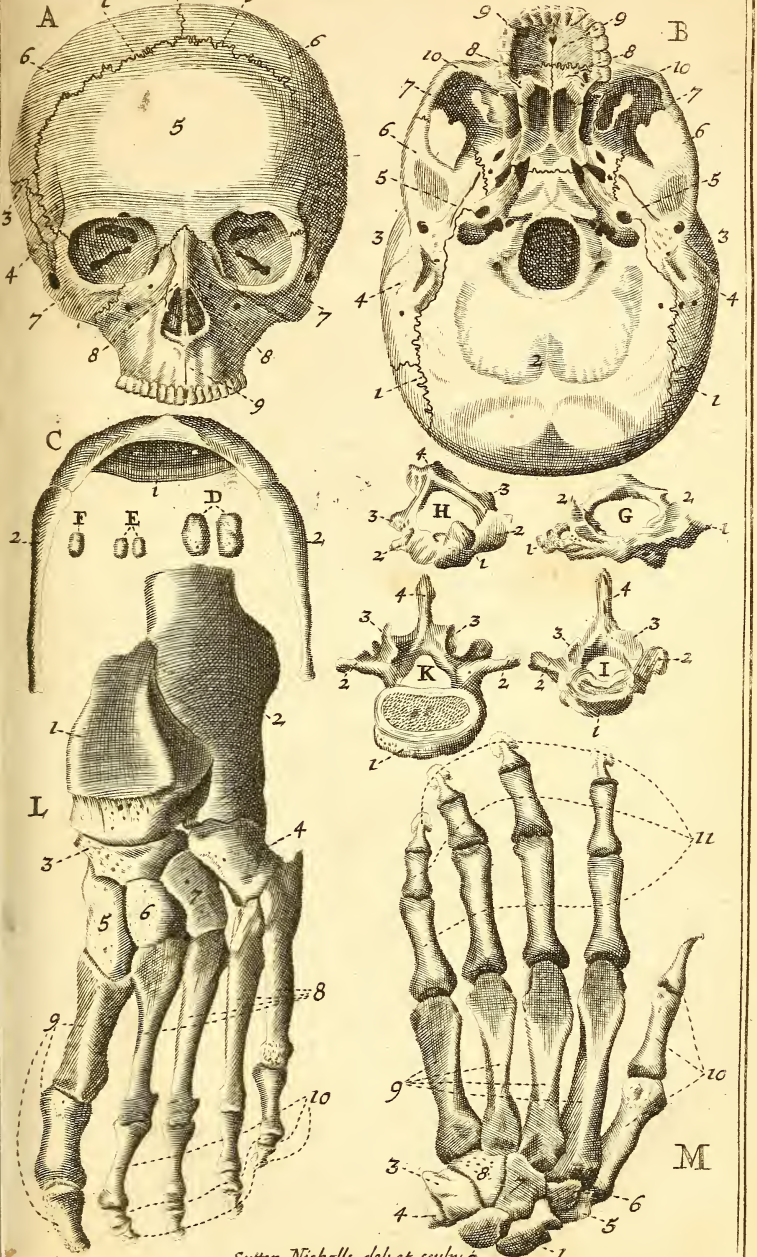
D, The *Oſſa Seſamoidea* of the Great Toe.

E, The *Oſſa Seſamoidea* of the Thumb.

F, The Seſamoid Bone that is found near the beginning of the *Plantaris* Muſcle.

G, The firſt *Vertebra.*

TAB. IIII.



Sutton Nicholls del: et sculp: 2

  1 *Proceſſus Tranſverſus.*
  2 *Proceſſus Obliquus.*
H, The ſecond *Vertebra.*
  1 *Proceſſus Dentatus.*
  2 *Proceſſus Tranſverſus.*
  3 *Proceſſus Obliquus.*
  4 *Proceſſus Spinalis.*
I, One of the *Vertebræ* of the *Thorax.*
  1 *Corpus Spongioſum.*
  2 *Proceſſus Tranſverſus.*
  3 *Proceſſus Obliquus.*
  4 *Proceſſus Spinalis.*
K, One of the *Vertebræ* of the Loins.
  1 *Corpus Spongioſum.*
  2 *Proceſſus Tranſverſus.*
  3 *Proceſſus Obliquus.*
  4 *Proceſſus Spinalis.*
L, The Bones of the Foot.
  1 *Aſtragalus.*
  2 *Os Calcis.*
  3 *Os Naviculare.*
  4 *Os Cuboides.*
  5 *Os Cuneiforme majus.*
  6 *Os Cuneiforme medium.*
  7 *Os Cuneiforme minimum.*
  8 *Metatarſus.*
  9 *Oſſa Pollicis Pedis.*
  10 *Oſſa Digitorum Pedis.*
M, The Bones of the Hand.
  1, 2, 3, 4, 5, 6, 7, 8. The Eight Bones of the *Carpus.*
  9 *Metacarpus.*
  10 The Bones of the Thumb.
  11 The Bones of the Fingers.

TABLE V.

A, SHEWS the SCELETON of a full grown *Fœtus*, in which may be obſerv'd, The *Epiphyſes*, the *Carpus* and *Tarſus*, which are Cartilaginous, ſhrunk in drying, and the ſhape in general differing from the SCELETON of an Adult.

B, The *Scapula* of a Body Twelve Years old.

1 An *Epiphyſis* at the *Baſis*.

2 The *Epiphyſes* of its *Proceſſes*.

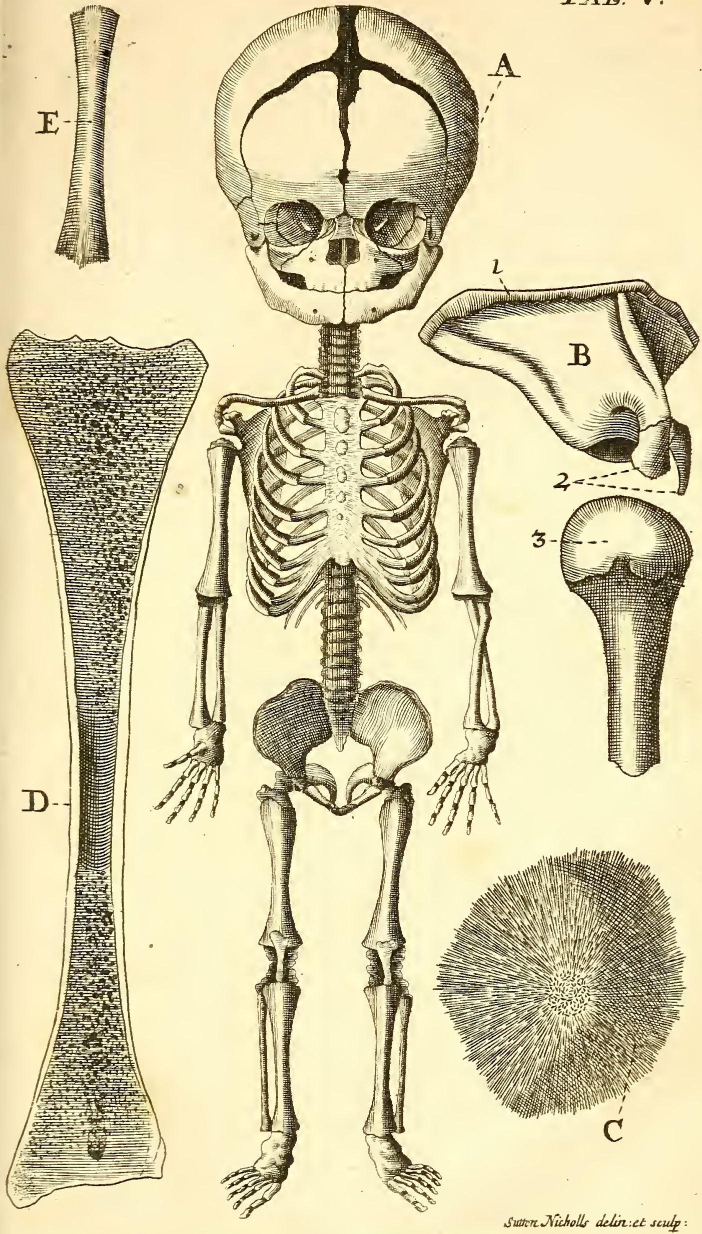
3 The *Epiphyſis* at the upper End of the *Os Humeri* from the ſame Body.

C, The *Bregma* of a *Fœtus* Five Months old prepar'd, to ſhew the Fibres Oſſifying from a middle Point, and ſhooting out on every ſide.

D, The *Tibia* ſaw'd length-ways.

E, The *Tibia* of a *Fœtus* Five Months old with the *Epiphyſes* off.

TAB. V.



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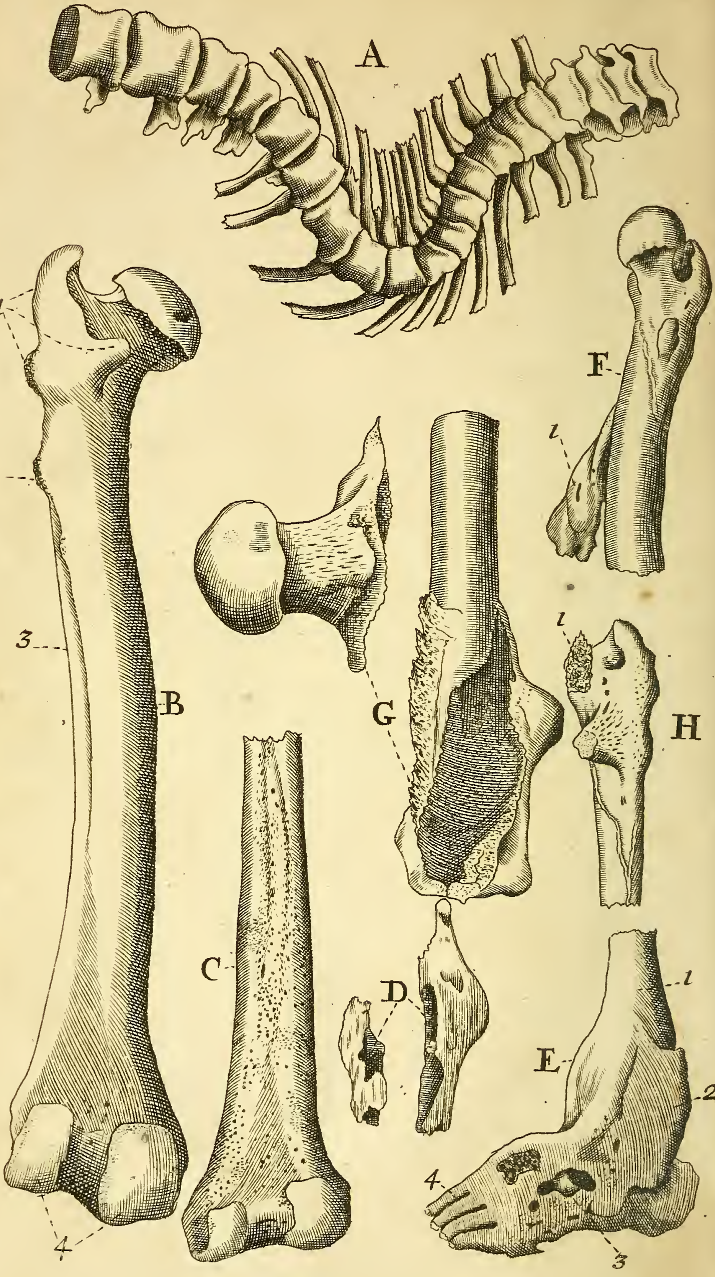
Tab. VI.



Sutton Nicholls delin: et sculp:

TABLE. VI.

A, A Diſtorted Spine.

B, The *Os Femoris* of a Man Eight Foot high.

1 Shows Three *Trochanters.*
2 a Fourth *Trochanter.*
3 The *Linea Aſpera.*
4 The Two inferior *Apophyſes.*

C, Part of an *Os Femoris* Carious.

D, Half the Lower-Jaw exfoliated.

E, Part of a Carious Leg and Foot, with all the Bones grown into One.

1 The *Tibia.*
2 The *Fibula.*

F, Part of a Thigh-bone.

1 A Bony Excreſcence.

G, The Head of the *Os Femoris* broke off, and miſtaken for a Luxation.

H, Another piece of an *Os Femoris* with the Head broke off; which was alſo miſtaken for a Luxation.

BOOK II.

CHAP. I.

Of the MUSCLES *in general.*

Chapter I.

THE Muſcles are ſo many moving Powers, or Cords, apply'd to perform the Motions of the ſeveral Parts: Which they do by contracting their Length; and thereby bring the Parts to which they are fix'd nearer together. The immovable, or leaſt mov'd Point any Muſcle is fix'd to, is call'd its Origin, and the other its Inſertion.

The Power or Force of any Muſcle, is to be computed by its number of Fibres, and the manner of its Inſertion. For the Strength of each Muſcle is as the number of its Fibres; and the Power with which it acts upon the mov'd Limb, is as the diſtance of its Inſertion from the Center of Motion, and the nearneſs of its Direction to a Right Angle with that of the Bone mov'd. The quickneſs or quantity of Motion in a Limb, will be as the length of the Fibres of the moving Muſcle, and the nearneſs of Inſertion to the Center of Motion. In theſe Caſes, whatever is gain'd in velocity, is loſt in ſtrength; and ſo the contrary.

From this it appears, That a Muſcle of any Figure may be made fit either for ſtrength or quickneſs of Motion by its Inſertion: For a Muſcle of long Fibres may cauſe a ſlow and ſtrong Motion by an Inſertion diſtant from the Center of Motion; and a peniform Muſcle, or any other of ſhort Fibres, may cauſe a quick Motion from a near Inſertion.

Theſe Things being Conſider'd, it will not be difficult to account for the great difference we obſerve in the Activity or Strength of Men or Brutes, or for one Man's being ſtronger or nimbler than another of greater Bulk.

It muſt alſo be conſider'd in Calculating the ſtrength of any Muſcle, that its force as it contracts in its length, decreaſes in the ſame, or near the ſame, proportion. The Flexors have nevertheleſs the ſame, or near the ſame, power in all Poſitions, 'till they bring the Limb mov'd to Right Angles with their own Directions; for the advantage of their Direction increaſes in the ſame, or near the ſame, proportion that their Power decreaſes.

In the Extenſors of the large Joynts, as the Thigh and Arm, there are ſeveral Muſcles imploy'd, which are ſo contriv'd, that as the firſt Movers decreaſe in power by approaching to the ſame Direction with the

Bone mov'd, ſome other Muſcle begins to act, which increaſes its power in the ſame degree, by the advantage of a more convenient Direction, and greater bulk. Hence reſults that great Regularity that there is in the Motions of the ſeveral Parts.

Chapter II.

We may alſo obſerve, That the Muſcles which are in continual Motion, as thoſe of the *Thorax*, and thoſe which ſuſtain great Weights, are inſerted at Right Angles, while other Muſcles of leſs conſequence have leſs advantageous Inſertions.

CHAP. II.

Of the MEMBRANES *of the* MUSCLES.

MEMBRANÆ MUSCULORUM. All the External Muſcles are either cover'd with a ſtrong tendinous expanſion, or with a thin lax Membrane: The former is either the flat Tendon of ſome other Muſcle or Muſcles, as may be obſerv'd upon the *Abdomen* and Loyns, or a *Faſcia* detach'd from the Tendons of other Muſcles, as may be ſeen in the Limbs: Or not deriv'd from any, as we may obſerve upon the *Infraſpinati* of the *Scapulæ*. Moſt of the other are of the later Sort; but thoſe that adhere to the Skin, as in the Face, have no Membrane.

The interior Muſcles, and the under-ſide of the exterior ones, have only a looſe Membrane for the moſt part, or in thoſe whoſe Surfaces do not touch each other, little more than a *Membrana adipoſa.*

CHAP. III.

Of the MUSCLES.

Muſcles of the Abdomen.

OBLIQUUS *Deſcendens*, ariſes fleſhy from near the extremities of the Eight inferior Ribs, the upper part of its Origin being indented with the *Serratus major anticus*, and the lower lying under a ſmall portion of the *Latiſſimus Dorſi*, and is inſerted fleſhy into the upper part of the Spine of the *Ilium*, and by a broad flat Tendon, which uniting with that of the following Muſcles at the outſide of the *Rectus*, and thence paſſing over the *Rectus*, is inſerted into the *Os Pubis*, and a ſtrong tendinous Line extended from the *Os Pubis* to the *Sternum*, between the *Muſculi Recti*, call'd *Linea alba.*

OBLIQUUS *Aſcendens*, ariſes fleſhy under the former Muſcle from the Spine of the *Ilium*, and is inſerted fleſhy into the Cartilages of the Three loweſt Ribs, and by a flat Tendon into the *Os Pubis* and *Linea alba*, together with the Tendon of the foregoing Muſcle; the joyning of theſe two Tendons on the outſide of the *Rectus* Muſcle, is call'd *Linea ſemilunaris.*

It may be obſerv'd, tho' ſo much of this Muſcle as is inſerted fleſhy, runs obliquely upwards, yet the middle and lower part is directed tranſverſe and downwards, and beſide the Tendon which it unites with the *Obliquus deſcendens*, it detaches another to be inſerted with the *Tranſverſalis* under the *Rectus.*

PYRAMIDALIS, ariſes from the *Os Pubis*, and is inſerted into the *Linea alba* about three or four Inches below the Navel: This with its fellow are often wanting.

RECTUS, ariſes ſomewhat tendinous from the *Os Pubis*; but fleſhy when the *Pyramidales* are wanting, and is inſerted into the lower part of the *Sternum* near the *Cartilago Enſiformis.* This Muſcle is divided into four or five portions by tranſverſe tendinous Interſections, that it might not preſs the contain'd Parts only in one Place; but theſe Interſections are chiefly above the Navel, a larger Belly being convenient below to ſupport the *Viſcera.*

TRANSVERSALIS, ariſes by a flat Tendon from the tranſverſe Proceſſes of the lumbal *Vertebræ*, and fleſhy from the inſide of the Ribs below the Diaphragm, and from the Spine of the *Ilium*, and becoming a flat Tendon, paſſes under the *Rectus* to its Inſertion into the *Linea alba.*

This flat Tendon is miſtaken by Anatomiſts for a Membrane, and made part of the *Peritoneum*: Hence that Membrane is ſaid to be double.

Theſe five Pair of Muſcles all conſpire to compreſs the Parts contain'd in the *Abdomen*. The *Obliquus Deſcendens* on the Right Side, and *Aſcendens* on the Left acting together, turn the upper part of the Trunk of the Body towards the Left *& vice verſa*; but the Trunk of the Body is turn'd chiefly upon the Thighs; the *Recti* bend the Body forwards, and pull the *Sternum* downwards in Expiration; the Two Oblique Muſcles and the Tranſverſe on each ſide near the Groins, are perforated to let thro' the *Proceſſus Vaginalis* with the Spermatick Veſſels. Theſe Perforations are diſtant from each other, both to ſuffer the Veſſels to deſcend in a Right Line, and to prevent a Rupture of any ſort out of the *Abdomen* into the *Scrotum*.

Muſcles of the Teſtes.

CREMASTER TESTIS, Is a ſmall portion of Fibres produc'd from the *Obliquus Aſcendens* near its Perforation, thence deſcending with the *Proceſſus Vaginalis*, is looſely expanded over the Teſticle. This Muſcle is too ſmall to be plainly diſcover'd in Emaciated Bodies.

Muſcles of the Penis.

ERECTOR PENIS, ariſes from the *Os Iſchium*, and is inſerted into the *Crus Penis* near the *Os Pubis*: It is ſaid, by preſing the *Penis* againſt the *Os Pubis* to compreſs the *Vena Ipſius Penis*, and hinder the reflux of

Blood, whereby the *Penis* becomes extended and erect.

ACCELERATOR URINÆ, This with its Fellow, we will deſcribe as One Muſcle; it ariſes from the beginning of the *Urethra*, and thence being extended over all its bulbous part, is inſerted into the *Penis*. The Uſe of this Muſcle is not to accelerate the Urine, for that is protruded by the *Detruſor Urinæ*, or Muſcular Coat of the Bladder, but to eject the *Semen*, which is done only by this; and it being ſeated oppoſite to the *Os Pubis*, at the ſame time pulls the *Penis* down, whereby the Blood is ſuffer'd to return by the Vein, and the *Penis* inſtantly begins to grow empty and flaccid after ejection.

SPHINCTER VESICÆ URINARIÆ, is a ſmall portion of muſcular Fibres, not eaſily to be diſtinguiſh'd, running round the Neck of the Bladder to prevent the involuntary effuſion of Urine.

DETRUSOR URINÆ, is the muſcular Coat of the Bladder; its Fibres are differently diſpos'd; but chiefly terminating in the *Sphincter veſicæ*, whereby it not only preſſes the Urine forwards, but becomes, when the Bladder is full, an Antagoniſt to the *Sphincter*.

Muſcles of the Clitoris.

ERECTOR CLITORIDIS, ariſes from the *Iſchium*, and is inſerted into the *Crus Clitoridis*, like the *Erector Penis* in Men, and is ſaid, to cauſe erection in the ſame manner.

SPHIN-

Muſcles of the Vagina Uteri.

SPHINCTER VAGINÆ, is an Order of Muſcular Fibres intermix'd with Membranous Fibres, ſurrounding the *Vagina Uteri* near its Orifice; it is connected ſomewhat looſely to the *Oſſa Pubis*, and ſometimes to the adjacent Parts; its Uſe is, to reſtringe the Orifice of the *Vagina*, to preſs out a Liquor from the Glands, and imbrace the *Penis* in coition.

Muſcles of the Anus.

SPHINCTER ANI, is a Muſcle near two Inches breadth, ſurrounding the *Anus* to cloſe it, and to prevent involuntary falling out of the *Fæces*. Part of this Muſcle is connected to the beginning of the *Urethra*, and is by ſome Anatomiſts divided and call'd *Tranſverſalis Penis.*

LEVATOR ANI, ariſes from the *Os Pubis*, *Iſchium Sacrum* and *Coccygis*, and is inſerted into the foregoing Muſcle. The Uſe of it is to ſupport and dilate the *Anus* while the Excrement is detruded.

Muſcles of the Scalp and Forehead.

OCCIPITO-FRONTALIS, is a Muſcle with Four fleſhy Bellies, commonly nam'd *Frontales* and *Occipitales*, it ariſes behind each Ear from the *Os Occipitis*, and ſoon becoming tendinous, paſſes under the Hairy-ſcalp to the Forehead, where it becomes broad and fleſhy, adhering to the Skin, and is inſerted into the upper part of the Orbicular Muſcles of the Eye-lids, and by two Proceſſes in to the Bones of the Noſe. When this Muſcle acts from the back-part, it pulls the Skin of the Forehead upwards and wrinkles it tranſverſe; but when the fore-part of it acts, it draws the Skin with the Eyebrows downward, and towards the Noſe when we Frown.

What we commonly call *Muſculi Corrugatores*, is a portion of this Muſcle toward the inner corner of the Eye; and we ſuſpect, that a thin portion of this Muſcle towards the Ear, may have been miſtaken for an *Elevator Auriculæ*, as its Tendon has been for a Membrane of the *Cranium*.

Muſcles of the Ear.

RETRACTOR AURICULÆ, ariſes by one, two or three ſmall portions from the Temporal Bone above the Mamillary Proceſs, and is inſerted into the Ear to pull it backwards.

Ancient Anatomiſts, that took their Deſcriptions from Brutes, reckon Four Muſcles of the Ear; and from them moſt of our Copying Writers. *Muſcles of the internal Ear.* See Chap. *Of the Organs of Hearing.*

Muſcles of the Eye-lids.

ORBICULARIS PALPEBRARUM, ſurrounds the Eye-lids on the Edge of the Orbit, and is fix'd to the *Sutura Tranſverſalis* at the great Corner of the Eye; it ſhuts the Eye-lids, eſpecially in Winking.

CILIARIS, is a very ſmall portion of this Muſcle, next the Ciliary Cartilages of the Eye-lids.

ELEVATOR PALPEBRÆ *ſuperioris rectus*, ariſes from the bottom of the ~~of the~~ Orbit of the Eye above the Optick Nerve, and is inſerted into the Ciliary Cartilage of the upper Eye-lid by a very thin flat Tendon; it draws the ſuperior Eye-lid up, and inward over the Ball of the Eye.

Muſcles of the Eye.

Elevator Oculi, ariſes from the bottom of the Orbit, between the Optick Nerve and the foregoing Muſcle, and is inſerted into the upper part of the *Tunica Sclerotis* of the Eye, near the *Cornea.*

Depressor Occuli, both ariſes, and is inſerted, directly oppoſite to the laſt deſcrib'd Muſcle.

Adductor Oculi, ariſes from the bottom of the Orbit, near the Optick Nerve internally, and is inſerted into the *Tunica Sclerotis* on the ſide next the Noſe.

Abductor Oculi, has both its Origin and Inſertion, directly oppoſite to the *Adductor.*

Obliquus *Superior ſeu Trochlearis*, ariſes between the *Elevator* and *Adductor Oculi* at the bottom of the Orbit, thence aſcending by the *Sutura Tranſverſalis*, becomes a round Tendon, which paſſing through a Pulley at the upper and inner part of the Orbit near its Edge, is inſerted near the bottom of the Globe of the Eye, which it pulls upwards and inward, and thereby directs the Pupil outwards and downward.

Obliquus *Inferior*, ariſes from the Edge of the Orbit, between the *Maxilla ſuperior* and *Os Mali*; thence paſſing over the *Depreſſor*, is inſerted near the *Abductor*

ductor at the bottom of the Eye, but not ſo low as the Inſertion of the *Obliquus ſuperior*: It turns the Pupil upward and outward. The two Oblique Muſcles acting together, ſerve as an *Axis* to the Motion of the other Four Muſcles; and as the Power of theſe Two is leſſen'd by Age or Diſeaſe, the Eye ſinks into the Orbit. Another Uſe theſe Muſcles have, is, to direct the Pupils according to the different diſtances of Objects.

Muſcles of the Face.

SPHINCTER or *Conſtrictor Oris*, ſurrounds the Mouth about $\frac{3}{4}$ of an Inch broad.

ELEVATOR LABII *Superioris proprius*, ariſes from the Bone of the upper Jaw under the anterior and inferior part of the *Orbicularis Palpebrarum*, and paſſing down by the ſide of the Noſe, is inſerted into the upper part of the *Sphincter Oris*. This at once raiſes the upper Lip, and dilates the Noſtrils.

DEPRESSOR LABII *Superioris proprius*, is a ſmall Muſcle ariſing from the upper Jaw near the *Dentes inſciſorii*, and is inſerted into the upper part of the Lip; this alſo conſtricts the Noſtrils. Beſides theſe Muſcles, the Noſe is ſaid to have a ſmall Muſcle lying on its ſide, nam'd *Retractor Alæ Naſi*. In fleſhy Bodies we often meet with ſomething very like one; but ſeeing the Noſe is not to be mov'd without the Lips, and that this appearance is exceeding ſmall, we are not fond of calling it a diſtinct Muſcle.

DEPRESSOR LABII *Inferioris proprius*, ariſes broad from the Lower Jaw at the

Chin, and is ſoon inſerted into the *Sphincter Oris*; the Order of Fibres in this is not ſo conſpicuous, as in the other Muſcles of the Face.

ELEVATOR LABII *Inferioris proprius*, ariſes from the Lower Jaw near the *Dentes inciſorii*, and is inſerted into the lower part of the Lip.

ELEVATOR LABIORUM *Communis*, ariſes from a depreſs'd part of the ſuperior *Maxilla* under the middle of the Orbit, and is inſerted into the *Sphincter* Muſcle near the Corner of the Mouth.

DEPRESSOR *Communis Labiorum*, ariſes laterally from the Lower Jaw near the Chin, and is inſerted into the *Sphincter*, oppoſite to the former.

ZYGOMATICUS, ariſes from the anterior part of the *Os Zygoma* or *Mali*, and running obliquely downwards, is inſerted into the *Sphincter* at the Corner of the Mouth, betwixt the *Elevator communis* and *Buccinator*; it draws the Corner of the Mouth outwards and upwards. When this Muſcle grows weak, the Corner of the Mouth ſinks, as may be obſerv'd in Old Perſons.

BUCCINATOR, ariſes from the *Proceſſus Corone* of the Lower Jaw, and paſſing contiguous to both Jaws; is inſerted into the *Sphincter* Muſcle at the Corner of the Mouth. It ſerves either to force Breath out of the Mouth, or thruſt the Aliment between the Teeth in Maſtication, or to pull the Corner of the Mouth outward.

Platysma Myoides, begins looſe from over the Pectoral and part of the Deltoid Muſcle, and running obliquely forwards, is inſerted into the Chin, and Depreſſor Muſcles of the Lips: This Muſcle being exceeding thin (a mere *Membrana Carnoſa*) ſerves to cover the unequal ſurface of the ſubjacent Muſcles, and render the Neck even; it alſo pulls down the Corner of the Mouth, and from its inſertion at the Chin, may contribute to the pulling down of the Lower Jaw.

Muſcles of the Os Hyoides.

Mylohyoideus, with its Fellow, may be eſteem'd a Digaſtrick Muſcle: It ariſes from the *Linea Aſpera* on the inſide of the Lower Jaw and *Proceſſus Innominatus*, both ſides meeting in a middle Line upon the following Muſcles; and is inſerted by a ſmall portion of Fibres into the Baſis of the *Os Hyoides*; it moves the Tongue upwards and forwards, and alſo compreſſes the following Muſcles, whereby they raiſe the Tongue more commodiouſly, and alſo hinders them from drawing the Baſis of the *Os Hyoides* into a Right Line betwixt the Chin and *Sternum* at ſuch times as the *Stylohyoidei* cannot act.

Geniohyoideus, ariſes from the *Proceſſus Innominatus* of the Lower Jaw, under the foregoing Muſcle, and is inſerted into

Chapter III.

to the Baſis of the *Os Hyoides*, which it pulls upwards and forwards.

STYLOHYOIDEUS, ariſes from the *Proceſſus Styliformis* near its Root, and paſſing contiguous to the Horn of the *Os Hyoides* becomes inſerted laterally into its Baſis: This Muſcle is frequently perforated about the middle by the Tendon of the Digaſtrick Muſcle of the Lower Jaw. Its Uſe is, to pull the *Os Hyoides* up and backwards.

CORACOHYOIDEUS, ariſes from the upper *Coſta* of the *Scapula* near the *Proceſſus Coracoides*, and paſſing under the *Maſtoideus* Muſcle becomes in that place a round Tendon; thence paſſing almoſt parallel to the following Muſcle, is inſerted together with it into the Baſis of the *Os Hyoides*; this draws the *Os Hyoides* downwards, and hinders the following Muſcles from pulling the Baſis of the *Os Hyoides* into a Right Line betwixt the *Sternum* and Chin.

STERNOHYOIDEUS, ariſes from a roughneſs at the under part of the *Clavicula* near the *Sternum*, and is inſerted into the Baſis of the *Os Hyoides*, to pull it downwards.

Muſcles of the Tongue.

GENIOGLOSSUS, ariſes from the *Proceſſus Innominatus* of the Lower Jaw, and is inſerted broad into the under part of the Tongue to pull it up and forwards.

CERATAGLOSSUS, ariſes from the Horn of the *Os Hyoides*, and is inſerted laterally into the Tongue near its Root to pull it downwards and foreward.

STYLOGLOSSUS, ariſes from the extremity of the *Proceſſus Styliformis*, and is inſerted into the Tongue near the former to pull it up and backwards. This with its Fellow and the *Stylohyoidei*, contribute very much to the keeping the *Os Hyoides* from ſinking, and being drawn into a Right Line betwixt the Chin and *Sternum*.

Muſcles of the Cartilago Thyroides.

HYOTHYROIDEUS or *Ceratathyroideus*, ariſes from the Horn of the *Os Hyoides*, and is inſerted into the lower part of the *Cartilago Thyroides*, to pull it upwards.

STERNOTHYROIDEUS, ariſes from the inſide of the *Sternum*, and is inſerted with the former; it pulls the Thyroid Cartilage directly downwards.

CRICOTHYROIDEUS, ariſes from the anterior part of the *Cartilago Cricoides*, and running ohliquely upwards and outwards, is ſoon inſerted into the inſide of the *Cartilago Thyroides*, which it pulls towards the *Cartilago Cricoides*. Both this Muſcle and its Fellow, for the moſt part appear double.

Muſcles of the Larynx.

CRICOARYTÆNOIDEUS *poſticus*, ariſes from the back-part of the *Cartilago Cricoides*, and is inſerted into the *Arytænoides* to pull it backwards.

CRICOARYTÆNOIDEUS *Lateralis*, ariſes laterally from the *Cartilago Cricoides*, and is inſerted laterally into the *Arytænoides*. This with its Fellow, pulls down each Cartilage towards their Origin, and thereby dilates the *Rimula*.

THYROARYTÆNOIDEUS, ariſes from the ſuperior, middle, and inner part of the *Cartilago Thyroides*, and is inſerted with the former into the *Arytænoides* Cartilage to dilate the *Rimula*. Theſe Two laſt Deſcrib'd Muſcles, cannot be well diſtinguiſh'd but in fleſhy Bodies.

ARYTÆNOIDEUS, is One ſingle Muſcle ariſing from One *Arytænoidal* Cartilage, and is inſerted into the other to draw them together and cloſe the *Rimula*.

Muſcles of the Pharynx.

STYLOPHARYNGEUS, ariſes from near the bottom of the *Proceſſus Styloides* of the *Os Petroſum*, and running obliquely downward, is inſerted into the *Pharynx*. This Muſcle with its Fellow, pulls up and dilates the *Pharynx* to receive the Aliment.

OESOPHAGEUS, ariſes like a Wing from the *Cartilago Cricoides*, all the back-part of the *Thyroides*, and Horn of the *Os Hyoides*, and is inſerted directly into the *Pharynx*. This with its Fellow, conſtringes the *Pharynx*, and preſſes the Aliment down the Gullet. *Muſculus Vaginalis Gulæ*, is the *Muſcular Coat* of the *Gula*: Which we ſhall Treat of in the Chapter of the *Ductus Alimentalis*.

PTERYGOPHARYNGEUS, is not a diſtinct Muſcle, but the beginning of the *Pharynx* near the *Proceſſus Pterygoides*, of the Sphenoidal Bone.

Muſcles of the Palate.

PTERYGOSTAPHILINUS *Internus*, ariſes from the *Proceſſus Salpingoides* near the *Pterygoides*,

goides, and is inſerted into the *Uvula*, which it pulls up while we breathe thro' the Mouth, or ſwallow our Aliment.

PTERYGOSTAPHYLINUS *Externus*, ariſes by the ſide of the laſt Deſcrib'd Muſcle, and is alſo inſerted near it; but becomes its Antagoniſt by being reflected, as on a Pulley, over the *Proceſſus Innominatus* at the lower part of the Pterygoidal Proceſſes of the Sphenoidal Bone.

Muſcles of the Lower Jaw.

DIGASTRICUS, ariſes from the *Sinus* of the Mamillary Proceſs of the *Os Temporis*, and from a fleſhy Belly, becoming a round Tendon paſſes thro', and ſometimes under the *Stylohyoideus* Muſcle, and then being ty'd down by a Ligament to the *Os Hyoides*, grows fleſhy, and is ſo inſerted into the anterior part of the Lower Jaw internally: This Muſcle's Direction being alter'd by its being ty'd to the *Os Hyoides*, where it makes an Angle, (and not at its paſſage thro' the *Stylohyoideus*) pulls the Lower Jaw downwards, which it otherwiſe cou'd not have mov'd ſo commodiouſly.

TEMPORALIS, ariſes from the *Os Frontis*, *Parietale*, *Sphænoides*, and *Temporis*, and paſſing under the two Proceſſes, by ſome nam'd *Os Jugale*, is inſerted externally into the *Proceſſus Corone* of the Lower Jaw, which it pulls upwards. This Muſcle is cover'd with a ſtrong tendinous *Faſcia* exceeding ſenſible.

MASSETER, ariſes from the lower Edge of the *Os Mali* or *Zygoma* and its Proceſs, and is inſerted to the outer part of the Angle of the Lower Jaw, which it pulls up and forwards. This Muſcle is not to be divided from the Temporal without violence, and therefore ſhou'd be Deſcrib'd with it as One Muſcle.

PTERYGOIDEUS *Internus*, ariſes from the *Proceſſus Pterygoideus externus*, and is inſerted internally to the Angle of the Lower Jaw; this acting ſingly, pulls the Jaw up forwards and to the contrary ſide.

PTERYGOIDEUS *Externus*, ariſes from the *Os Sphœnoides* by the Root of the Pterygoid Proceſs, and is inſerted internally to the *Proceſſus Corone* of the Lower Jaw, which it pulls to one ſide.

Muſcles of the Clavicles

SUBCLAVIUS, ariſes from the ſuperior part of the *Sternum*, and is inſerted into the inferior part of the middle half of the *Clavicula*. Its Uſe is to ſtrengthen the Articulation of the *Clavicula* with the *Sternum*, that they may not be ſever'd in the Motions of the *Scapula*.

Muſcles of the Scapula.

TRAPEZIUS, ariſes Tendinous from the *Os Occipitis* and the Spinal Proceſſes of the Two inferior *Vertebræ* of the Neck, and Eight of the Back, and from each other between theſe Proceſſes, and is inſerted into one third part of the *Clavicula* next the *Scapula*, the *Proceſſus Acromion*, and the upper Edge of the Spine of the *Scapula*. This

Muſcle with its Fellow, pulls the *Scapulæ* towards each other.

This Muſcle is erroneouſly ſaid to have different Actions, according to the ſeveral Directions of its Fibres; for no Muſcle acts in one part and not in another at the ſame time, without dividing the Part acting, from the Part not in Action.

RHOMBOIDES, ariſes Tendinous under the former, from the Spinal Proceſſes of the Two inferior *Vertebræ* of the Neck, and Four ſuperior of the *Thorax*, and is inſerted into the Baſis of the *Scapula*, which it pulls up and backwards.

ELEVATOR *Scapulæ*, ariſes from the tranſverſe Proceſſes of the Four or Five ſuperior *Vertebræ* of the Neck, and is inſerted into the upper Angle of the *Scapula.*

SERRATUS *Minor anticus*, ariſes under the *Pectoralis*, from the third, fourth and fifth Ribs, and is inſerted into the *Proceſſus Coracoides Scapulæ*, which it pulls forwards and downwards.

SERRATUS *Major anticus*, ariſes from the anterior part of the Eight ſuperior Ribs, and is inſerted into the Baſis of the *Scapula*, which it draws forwards and upwards.

All the Muſcles inſerted into the Baſis of the *Scapula*, are alſo inſerted into one another.

PECTORALIS, ariſes from near two thirds of the *Clavicula*, next the *Sternum*, and all the length of the *Os Pectoris*, and is inſerted into the *Os Humeri*, between the *Biceps* and the Inſertion of the *Deltoides*. The Uſe of it is to draw the Arm forwards.

A ſmall portion of the lower part of this Muſcle is commonly confounded with the *Obliquus deſcendens Abdominis*; and in ſome Bodies, neither the upper part nor its Tendon can be eaſily ſeparated from the *Deltoides*; and in others, even that part of it that ariſes from the *Clavicula*, is a diſtinct portion.

DELTOIDES, ariſes exactly oppoſite to the Inſertion of the *Trapezius* from one third part of the *Clavicula* from the *Acromion* and Spine of the *Scapula*, and is inſerted Tendinous about the middle of the *Os Humeri*. which Bone it lifts directly upwards.

This Muſcle with the *Supraſpinatus* and *Coracobrachialis* aſſiſt in all Actions of the *Humerus*, except the Depreſſion, it being convenient the Arm ſhou'd be rais'd and ſuſtain'd in order to its moving to any ſide.

SUPRASPINATUS, ariſes from the *Dorſum Scapulæ* above the Spine, and paſſing between the two Proceſſes, is inſerted into the upper part of the *Os Humeri*, which it helps to raiſe. 'till it becomes parallel to the *Spina Scapulæ*.

INFRASPINATUS, ariſes from the *Dorſum Scapulæ* below the Spine, and is inſerted (wrapping ſomewhat over it) at the ſide of the Head of the *Os Humeri*, which it turns prone and backwards.

Teres *minor*, is a ſmall Muſcle ariſing below the former from the inferior *Coſta Scapulæ*, and is inſerted together with it. This Shou'd not be conſider'd a diſtinct Muſcle, but a portion of the laſt deſcrib'd.

Teres *major*, ariſes from the lower Angle of the *Scapula*, and is inſerted at the under part of the *Os Humeri* about three Fingers breadth from the Head. This draws the *Os Humeri* towards the lower Angle of the *Scapula*.

Latissimus *Dorſi*, ariſes by a flat Tendon from the Spinal Proceſſes of the Seven inferior *Vertebræ* of the Back, and thoſe of the Loyns, *Sacrum* and *Ilium*, and growing fleſhy after it has paſs'd the Extenſors of the Trunk, receives another ſmall fleſhy beginning from the loweſt Ribs, and is inſerted into the *Os Humeri* near the former. This turns the Arm backwards and inwards, to which the foregoing Muſcle contributes.

Subscapularis, ariſes from the hollow ſide of the *Scapula*, which it fills up, and is inſerted into the Head of the *Os Humeri*, wrapping ſomewhat over it. This pulls the Arm to the Side.

Coracobrachialis, ariſes from the *Proceſſus Coracoides Scapulæ* in common with the Inſertion of the *Serratus minor anticus*, and is inſerted into the *Os Humeri* internally about its middle. This raiſes the Arm and turns it ſomewhat outwards.

Muſcles of the Cubit.

Biceps Cubiti *Flexor*, ariſes with Two Heads, the One from the *Proceſſus Coracoides Scapulæ* in common with the *Coracobrachialis*, and the other by a round Tendon from the Edge of the *Acetabulum Scapulæ*, which paſſing in a *Sulcus* of the *Os Humeri* becomes fleſhy, and joyns the firſt Head to be inſerted with it into the Tubercle of the *Radius*, and by the Tendinous Faſcia which it detaches over the Muſcles that ariſe from the inner Extuberance of the *Os Humeri*. This bends the Cubit and turns it ſupine.

We have ſometimes found this Muſcle with a third Head beginning from the middle of the *Os Humeri*.

Bracheus *Internus*, ariſes from below the middle of the *Os Humeri*, and is inſerted into a rough place of the *Ulna* immediately below the Juncture. This alſo bends the Cubit.

Triceps *Extenſor Cubiti*, commonly diſtinguiſh'd into *Biceps* and *Bracheus externus*. The firſt of theſe Heads ariſes from the lower *Coſta* of the *Scapula* near the *Acetabulum*; the ſecond from the outer and back-part of the *Os Humeri*, the third, lower and more internal; and are inſerted into the *Proceſſus Olecranon* of the *Ulna*.

Anconeus, ariſes from the outward Extuberance of the *Os Humeri*, and is inſerted into the upper part of the *Ulna*: This is alſo an Extenſor; but its proper Uſe is to draw the *Ulna* towards that Extuberance, and thereby keep the *Radius* up to the *Os Humeri* when the other Extenſors act.

Muſcles of the Palm of the Hand.

PALMARIS *Longus*, ariſes ſmall from the inner Extuberance of the *Os Humeri*, and forming a ſhort Belly ſoon becomes a Tendon, which is connected to the *Ligamentum Tranſverſale Carpi*, and expanded in the Palm of the Hand. This Muſcle is often wanting, but the Expanſion in the Hand never: It may ſerve both to conſtrict the Hand, and aſſiſt the Flexors of the *Carpus*.

PALMARIS *Brevis* or *Caro Quadrata*, ariſes obſcurely from the *Ligamentum tranſverſale Carpi*, and ſeems to be inſerted into the eighth Bone of the *Carpus* and the Metacarpal Bone of the Little Finger. This helps to conſtrict the Palm of the Hand.

Muſcles of the Carpus.

FLEXOR CARPI *Radialis*, ariſes from the inner Extuberance of the *Os Humeri*, and forming a large Tendon, is inſerted into the eighth Bone of the *Carpus*.

FLEXOR CARPI ULNARIS, ariſes from the ſame Extuberance with the former, and a *Faſcia* betwixt this Muſcle and the *Tenſor Ulnaris* contiguous to the *Ulna*, and is inſerted by a ſhort Tendon into the fourth Bone of the *Carpus*.

EXTENSOR CARPI *Radialis*, is always Two diſtinct Muſcles with ſhort bellies; the firſt ariſes from the *Os Humeri* immediately below the the *Supinator Radii longus*, and is inſerted into the Metacarpal Bone of the firſt Finger; the ſecond ariſes immediately below this from the outer Extuberance of the *Os Humeri*, and is inſerted into the Metacarpal Bone of the ſecond Finger.

EXTENSOR ULNARIS, ariſes from the ſame Extuberance with the former, and half the *Ulna* below the *Anconeus* Muſcle; then becoming a Tendon, runs in a ſmall *Sinus* at the bottom of the *Ulna*, and is inſerted into the Metacarpal Bone of the Little Finger. The *Flexor* and *Tenſor Ulnaris* acting together turn the Hand downwards, the *Tenſor* and *Flexor Radialis* upwards.

Muſcles of the Fingers.

PERFORATUS or *Flexor ſecundi internodii digitorum*, ariſes from the inner Tubercle of the Os *Humeri*, and from the upper part of the *Radius* and *Ulna*; then becoming Four ſtrong Tendons, paſſes under the *Ligamentum tranſverſale Carpi*, and is inſerted into the beginning of the ſecond Bone of each Finger.

PERFORATUS or *Flexor tertii internodii digitorum*, ariſes from half the *Ulna*, part of the *Radius*, and the Ligament between theſe Bones, and becoming Four Tendons, paſſes under the *Ligamentum tranſverſale Carpi*, and thro' the Tendons of the former Muſcle to their Inſertion into the third Bone of each Finger. The Tendons of both theſe Muſcles are ty'd down to the Fingers by a ſtrong Ligament.

LUMBRICALES or *Flexores primi interdii digitorum*, ariſe from the Tendons of the laſt mention'd Muſcles, and are inſerted laterally towards the Thumb into the beginning of the firſt Bone of each Finger.

EXTENSOR DIGITORUM COMMUNIS, ariſes from the outer extuberance of the *Os Humeri*, and from the *Ulna* below the *Anconeus* Muſcle, then paſſes under a Ligament, and is divided into four Tendons which communicate upon the firſt Joynt, and ſometimes on the back of the Hand, and are inſerted into the ſecond Bone of each Finger.

EXTENSOR AURICULARIS or *Minimi digiti*, is a portion of the ſame Muſcle paſſing under the Ligament in a diſtinct Channel.

EXTENSOR INDICIS, ariſes from the lower and back-part of the *Ulna*, and paſſing under the Ligament of the *Carpus*, is inſerted with the *Extenſor Communis* into the Fore-Finger. This Muſcle extends the Fore-finger ſingly. We have once ſeen it wanting.

INTEROSSEI, are Six in the Interſtices of the Metacarpal Bones, ariſing from their ſides, and running obliquely to the Top of each Finger, are inſerted into the laſt Bone of each Finger. Theſe either extend or divaricate the Fingers with the aſſiſtance of the Two following Muſcles.

ABDUCTOR INDICIS, ariſes from the lower part of the firſt Bone of the Thumb and the Metacarpal Bone of the firſt Finger, and is inſerted into the laſt Bone of the Finger, like the *Interoſſei*.

ABDUCTOR *Minimi Digiti*, is commonly

Two diſtinct Muſcles; the firſt ariſes from the *Ligamentum tranſverſale* and eighth Bone of the *Carpus*, and is inſerted into the Metacarpal Bone and firſt Joynt of this Finger: This part we may obſerve is turgid when we draw the Little-finger towards the Thumb; and has by ſome Authors been call'd *Adductor*. The other part of this Muſcle ariſes from the outer Edge of the Metacarpal Bone of the Little Finger, and is inſerted into the ſecond and third Bone of that Finger, like the *Interoſſei*.

Muſcles of the Thumb.

EXTENSOR *Primi internodii Pollicis*, ariſes from the *Ulna* below the *Anconeus* Muſcle and the Ligament between the *Ulna* and *Radius*, then becoming Two, Three, or Four Tendons, is inſerted into the fifth Bone of the *Carpus*, and firſt of the Thumb. The firſt of theſe Inſertions can only aſſiſt the bending of the Wriſt upwards, and in turning the Arm ſupine.

EXTENSOR *Secundi internodii Pollicis*, ariſes immediately below the former from the ſame places, and is inſerted by a few Fibres into the ſecond Bone of the Thumb, but chiefly into the Third.

EXTENSOR *Tertii internodii Pollicis*, ariſes immediately below the laſt Deſcrib'd, from the ſame Bone and Ligament, and paſſes over the *Radius* nearer the *Ulna* to be inſerted at the third Bone of the Thumb: This extends the Thumb more towards the *Ulna* than the former Muſcle.

Chapter III.

Flexor *Primi & ſecundi Oſſis Pollicis*, ariſes from the fifth Bone and tranſverſe Ligament of the *Carpus*, and is inſerted into the whole length of the firſt Bone of the Thumb, and Tendinous into the beginning of the ſecond. This Muſcle may, in moſt Bodies, be divided into Three.

Flexor *Tertii internodii Pollicis*, ariſes large from almoſt all the upper part of the *Radius*, and becoming a round Tendon paſſes under the *Ligamentum tranſverſale Carpi* to be inſerted into the third Bone of the Thumb: This Muſcle ſingly acting draws the Thumb to the Metacarpal Bone of the Little Finger; but the laſt mention'd Muſcle acting with it, turns it towards the Fingers. This we obſerv'd in a Man that loſt by a Gun-ſhot Wound the *Flexor primi & ſecundi Oſſis* and *Adductor*, who cou'd never after direct the Thumb to graſp with the Fingers.

Adductor Pollicis, ariſes from the fifth, ſixth, and ſeventh Bones of the *Carpus*, and almoſt the whole length of the Metacarpal Bone of the Long-Finger, and is inſerted into the beginning of the ſecond Bone of the Thumb. This Muſcle naturally enough divides into Two, and might better be call'd a *Flexor* than *Adductor*.

Abductor Pollicis, ariſes from the fifth Bone and *Ligamentum tranſverſale* of the *Carpus*, and is inſerted laterally into the beginning of the ſecond Bone of the Thumb to draw it towards the *Radius*.

BOOK II.

Muſcles of the Radius.

SUPINATOR RADII *Longus*, ariſes from the lower and outer part of the *Os Humeri*, and is inſerted into the upper ſide of the *Radius* near the *Carpus*: This contributes very much to the bending of the Cubit the Hand being turn'd ſupine.

SUPINATOR RADII *Brevis*, ariſes from the outer Extuberance of the *Os Humeri* and upper part of the *Ulna*, and running half round the *Radius*, is inſerted near its Tubercle.

PRONATOR *Teres*, ariſes from the inner *Apophyſis* of the *Os Humeri*, and upper part of the *Ulna*, and is inſerted Tendinous into the *Radius* below the former.

PRONATOR *Quadratus*, ariſes from the lower Edge of the *Ulna* near the *Carpus*, and paſſing under the Flexors of the Fingers, is inſerted into the upper part of the *Radius*. Theſe Muſcles are occaſionally aſſiſted in their Actions by the Muſcles of the Hand; the Tenſors chiefly aſſiſting the Supinators, and the Flexors the Pronators.

Muſcles of the Head.

MASTOIDEUS, ariſes Tendinous from the *Sternum* near the *Clavicula*, and by a ſeparate fleſhy portion from the *Clavicula* which ſoon unites with the other beginning, and is inſerted to the outer part of the Mammillary Proceſs of the Temporal Bone. This with its Fellow, pulls the Head towards the Breaſt; but either acting alone, turns the Face ſide-ways over the contrary Shoulder.

RECTUS *Internus major*, ariſes from the anterior part of the Tranſverſe Proceſſes of the Five inferior Cervical *Vertebræ*, and paſſing over the Two ſuperior, is inſerted into a Roughneſs of the Occipital Bone near the fore-part of the Great *Foramen*. This binds the Head on the Two firſt *Vertebræ* of the Neck.

RECTUS *Minor internus*, ariſes under this from the firſt *Vertebra*, and is inſerted under it into the *Os Occipitis*. This bends the Head on the firſt *Vertebra*.

RECTUS *Lateralis*, ariſes from the anterior part of the Tranſverſe Proceſs of the firſt *Vertebra* of the Neck, and is inſerted into the *Os Temporis* and *Occipitis* between the Mammillary and Styloid Proceſſes. This turns the Head to one ſide.

SPLENIUS, ariſes by a thin Tendon from the Spinal Proceſſes of the Four ſuperior *Vertebræ* of the *Thorax*, and Two inferior of the Neck, and *Linea alba Colli*, and is inſerted into the *Os Occipitis*, the upper part of the Mammillary Proceſs of the Temporal Bone and the Tranſverſe Proceſſes of the Three ſuperior Cervical *Vertebræ*. This pulls the Head and Neck backwards, and to the contrary ſide; but both of theſe acting together pulls them directly backwards.

COMPLEXUS, ariſes from the Tranſverſe Proceſſes of the Six ſuperior *Vertebræ* of the *Thorax* and Six inferior of the Neck, and is inſerted into the *Os Occipitis* and back-part of the *Os Temporis*; which laſt part in ſome Bodies is ſeparate. This pulls the Head back.

RECTUS *Major poſticus*, ariſes from the Spinal Proceſſes of the ſecond *Vertebra* of the Neck, and is inſerted broader into the *Os Occipitis*. It pulls the Head back on the Two firſt *Vertebræ*.

RECTUS *Minor poſticus*, ariſes from the back-part of the firſt *Vertebra* of the Neck, (it having no Spinal Proceſs) and is inſerted below the former into the ſame Bone to pull the Head back on the firſt *Vertebra*.

OBLIQUUS *Superior*, ariſes from the Tranſverſe Proceſs of the ſecond *Vertebra*, and is inſerted into the *Os Occipitis* near the *Rectus major*; either of theſe acting, aſſiſt the *Rectus lateralis* on the ſame ſide; but both together, pull the Head back.

Muſcles of the Neck.

OBLIQUUS *Inferior*, ariſes from the Spinal Proceſs of the ſecond *Vertebra* of the Neck, and is inſerted into the Tranſverſe Proceſs of the firſt. This with its Fellow, alternately acting, turn the Head with the firſt *Vertebra* in a rotatory manner on the ſecond, whoſe *Proceſſus Dentatus* is the *Axis* of this Motion.

INTERSPINALIS COLLI, are Three or Four Pair of Muſcles between the Bifid Proceſſes of the Cervical *Vertebræ*, which they draw nearer each other when the Neck is bent backwards.

SCALENUS, ariſes from the Tranſverſe Proceſſes of the ſecond, third, fourth and fifth Cervical *Vertebræ*, and is inſerted in three parts (being divided for the tranſmiſſion of the Subclavian Veſſels) into the firſt and ſecond, and ſometimes third Rib. This with its Fellow ſuſtain the upper Ribs. *Vid. Serratus ſuperior poſticus.*

LONGUS COLLI, ariſes laterally from the Bodies of the Four ſuperior *Vertebræ* of the *Thorax* and from the anterior part of the Tranſverſe Proceſſes of the Five inferior *Vertebræ* of the Neck, and is inſerted into the fore-part of the firſt and ſecond *Vertebra* of the Neck, which it bends forwards.

To theſe Muſcles of the Neck, we may add ſome Fibres, not very diſtinct from the *Scaleneus*, ſituate between the Tranſverſe Proceſſes of the Cervical *Vertebræ* by their Inventor, call'd *Intertranſverſalis*.

MUSCULUS SPINALIS, and *Tranſverſalis Colli*, I ſhall treat of under the common Name of *Extenſor, Trunci Corporis.*

Muſcles of the Ribs.

SERRATUS *Superior poſticus*, ariſes with a thin Tendon inſeparable from the *Rhomboides*, from the Spinal Proceſſes of the Two inferior Cervical *Vertebræ* and two ſuperior of the *Thorax*, and is inſerted into the ſecond, third, and fourth Rib, immediately beyond the bendings; this with the *Scalenus*, ſuſtains the upper Ribs, that they might not be pull'd downwards, as the lower Ribs are upwards, in Inſpiration, nor by the Depreſſors of the Ribs in Exſpiration.

SERRATUS *Inferior poſticus*, ariſes with a broad Tendon (inſeparable from that of the *Latiſſimus Dorſi*) from the Spinal Proceſſes of the Four ſuperior *Vertebræ* of the Loyns and Two inferior of the *Thorax*, and is inſerted into the Four loweſt Ribs, chiefly the ninth and eleventh. It pulls down the Ribs in Exſpiration.

The lower part of this Muſcle is often inſeparable from the *Obliquus aſcendens Abdominis.*

INTERCOSTALES, are Eleven Pair on each ſide in the Interſtices of the Ribs; from their Order of Fibres diſtinguiſh'd into External and Internal; they all ariſe from the under Edge of each Rib, and are inſerted into the upper Edge of the Rib below. The External are largeſt backwards, having their firſt beginning from the tranſverſe Proceſſes of the *Vertebræ* like diſtinct Muſcles. Theſe run all from above obliquely forwards; but the Internal obliquely backwards; being thickeſt forwards, and thinneſt towards the Spine. The Internal are continu'd betwixt the Cartilages of the Ribs, with Fibres perpendicular to the Cartilages; between the Cartilages of the loweſt Ribs, they are inſeparable from the *Obliquus aſcendens Abdominis.* Theſe Muſcles by drawing the Ribs nearer to each other, pull 'em all upwards, (they being ſuſtain'd at the Top by the *Scalenus* and *Serratus ſuperior poſticus,)* and dilate the *Thorax.* Mr. *Cowper* has obſerv'd, That part of the internal *Intercoſtals*, in ſome places paſs over one Rib to the next, and ſometimes farther; theſe Portions, he wou'd have conſider'd as diſtinct Muſcles. But ſeeing they have the ſame Uſe with the *Intercoſtals*, we do not think it material to divide them.

TRIANGULARIS STERNI, ariſes internally from the Edge of the *Os Pectoris*, and is inſerted into the End of the ſecond, third, fourth, fifth, and ſixth Ribs. This pulls the Ribs to the Bone of the *Sternum*, and thereby bends its Cartilages in Exſpiration.

DIAPHRAGMA, ariſes on the Right Side by a Proceſs from the Three Lumbal *Vertebræ* and One of the *Thorax*; and on the Left, from the one Superior of the Loyns, and Inferior of the *Thorax*; (this laſt part being leſs to give way to the great Artery,) and is inſerted into the lower part of the *Sternum* and the Five inferior Ribs. The middle of this Muſcle is a flat Tendon, from whence the fleſhy Fibres may be ſaid to begin, and be diſtributed, like *Radii*, from a Center to a Circumference. In its Action it draws the lower Ribs down, and the Fibres nearer each other, whereby the *Thorax* is conſtricted in Expiration; it is aſſiſted by the Muſcles of the *Abdomen*, chiefly the *Recti*; and they at the ſame time compreſſing the contain'd Parts, thruſt them up againſt the Diaphragm, and render it Convex upwards, even in the time of Action.

Muſcles of the Back and Neck.

SPINALIS, and *Tranſverſalis Colli*, *Sacer*, *Sacrolumbalis*, *Longiſſimus Dorſi*, and *Semiſpinalis*, are all that portion of Fleſh betwixt the *Sacrum* and ſecond *Vertebra* of the Neck, *Splenius* and *Complexus* excepted, which ſeeing there is no proper Membrane to diſtinguiſh it into ſeveral Muſcles, and that it is all imploy'd in the ſame Action, we ſhall give it the Name of *Extenſor Trunci Corporis*, and deſcribe it all as One Muſcle.

EXTENSOR TRUNCI CORPORIS, ariſes from the back-part of the *Sacrum* and Spine of the *Ilium*; the outer part of this Muſcle, (*viz. Sacrolumbalis*) ariſes alſo from the Tranſverſe Lumbal Proceſſes, and is inſerted fleſhy into the Two or Three loweſt Ribs, and by ſmall Tendons into the Curves of all the other; receiving acceſſory Tendons from each Rib nearer the Spine, and is inſerted alſo with the following part, in ſome Bodies, into the Tranſverſe Proceſſes of the Six inferior *Vertebræ* of the Neck. The middle part, (*viz. Longiſſimus Dorſi*) ariſes alſo from the Tranſverſe Proceſſes of the Three inferior Lumbal *Vertebræ*, and is inſerted into all the Oblique Proceſſes of the Two ſuperior of the Loyns and laſt of the Back; and the Tranſverſe Proceſſes of the other Eleven,and the Six inferior of the Neck, or all the Seven: The remaining part, (*viz. Semiſpinalis*, and *Sacer*) will ſeldom bear any ſort of ſeparation: This ariſes alſo from the Oblique Proceſſes of the Lumbal *Vertebræ*, and Tranſverſe and Oblique of all, but the Two ſuperior *Vertebræ* of the whole Spine, and is inſerted into all the Spinal Proceſſes, but not into the firſt *Vertebra*. When this Part comes near the Neck, it in ſome Bodies divides, and inſerts the outer part only into the Spinal Proceſs of the ſecond *Vertebra* of the Neck: This portion is commonly known by the Name of *Spinalis Colli*; and that next the Bones, of *Tranſverſalis*; beſides the Extenſion of the Back, this Muſcle with its Fellow, act alternately in raiſing the *Oſſa Innominata* in Progreſſion, as we may eaſily obſerve by laying our Hands on the Back in that Action.

Muſcles of the Loyns.

QUADRATUS LUMBRORUM, ariſes from the upper part of the Spine of the *Ilium*, and is inſerted into all the Tranſverſe Lumbal Proceſſes. This with its Fellow, acting alternately, aſſiſt the laſt mention'd Muſcle in raiſing the *Oſſa Innominata* in Progreſſion. Each acting ſingly, while the lower Limbs are not mov'd, inclines the Body to one ſide; or both, draw the Body forwards.

PSOA *Parva*, ariſes laterally from the Body of the firſt Lumbal *Vertebra*, and ſoon becoming a ſmall Tendon, is inſerted into the *Os Innominatum* at the joyning of the *Ilium* and *Pubis*. It either aſſiſts them in the bending the Loyns forwards, or raiſing the *Os*

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natum in progreſſive Motion. This Muſcle is often wanting.

Muſcles of the Thigh.

PSOA *Magna*, ariſes laterally from the Bodies of the Four ſuperior *Vertebræ* of the Loyns, and is inſerted with the following Muſcle into the *Os Femoris*, at the Root of the *Trochanter*. This binds the Thigh.

ILIACUS *Internus*, ariſes from the concave part of the *Ilium*, and from its lower Edge, and paſſing over the *Ilium* near the *Pubis*, joyns the former Muſcle, and is inſerted with it, to be imploy'd in the ſame Action.

PECTINEUS, ariſes from the *Os Pubis* or *Pectinis*, near the joyning of that Bone with its Fellow, and is inſerted into the *Linea Aſpera* of the Thigh-bone for about Four Fingers breadth below the leſſer *Trochanter*. This bends the Thigh and turns the Toes outwards.

TRICEPS FEMORIS, The two leſſer Heads of this Muſcle ariſe under the *Pectineus*, and the third from the inferior Edges and back-parts of the *Pubis* and *Iſchium*, and is inſerted into the whole length of the *Linea Aſpera* and the inner *Apophyſis* of the *Os Femoris*. This alſo bends the Thigh and turns the Toes outwards.

The larger Head of this Muſcle has its Direction parallel to that of the Thigh-bone when the Thigh is Perpendicular to the Center of Gravity of the Body; therefore when the Limb is either bended, or extended beyond that Line, this Muſcle or Head of a Muſcle, will aſſiſt in bringing it to that Direction; ſo that in Walking, it alternately aſſiſts the Flexors and Extenſors in their firſt Motions, which is when their own Direction is leaſt advantageous.

GLUTEUS *Maximus*, ariſes from the back part of the Spine of the *Ilium* and the *Dorſum Ilii*, and ſide of the *Sacrum*, and a Ligament extended between theſe Bones, and from a thin *Faſcia* ſpread over that part of the following Muſcle which this does not cover, and is inſerted by a ſtrong Tendon into the upper part of the *Linea Aſpera* of the Thigh-Bone, and alſo into the flat Tendon of the *Faſcialis* Muſcle, which latter Inſertion, tho' very conſiderable, is not often obſerv'd. This extends the Thigh, and both theſe together being contracted, occaſionally aſſiſt the *Sphincter Ani* in ſupporting the *Anus*.

GLUTEUS *Medius*, ariſes from all the anterior part of the *Spina* and *Dorſum Ilii* and under part of the laſt mention'd Muſcle, and is inſerted into the upper part of of the great *Trochanter* of the Thigh-bone. This extends it outwards.

GLUTEUS *Minimus*, ariſes intirely under the former from the *Dorſum Ilii*, and is inſerted into the upper and anterior part of the great *Trochanter*, to extend the Thigh.

PYRIFORMIS, ariſes internally from the upper part of the *Sacrum*, and growing in more than half its progreſs into a round

Tendon, is inſerted into the upper part of the great *Trochanter.* This aſſiſts ſomewhat in extending the Thigh, but more in turning it outwards.

QUADRATUS FEMORIS, ariſes from the obtuſe Proceſs of the *Iſchium*, and is inſerted into the upper part of the *Linea Aſpera* of the Thigh-bone. This draws the Thigh inwards, and directs the Toes outwards.

OBTURATOR *Internus*, or *Marſupialis*, ariſes internally from a ſtrong Membrane or Ligament, which fills up the Hole of the *Os Innominatum* and from the Circumambient-bone, thence paſſing over a Channel in the *Iſchium* betwixt its two Proceſſes, it receives from them two other portions, which are a ſort of *Marſupium*, and is inſerted into the *Sinus* of the great *Trochanter.* This turns the Thigh outwards.

OBTURATOR *Externus*, ariſes oppoſite to the former from the outſide of the *Os Innominatum*, and is inſerted into the *Sinus* of the great *Trochanter*; this alſo turns the Thigh outwards. Theſe Four laſt mention'd Muſcles acting with the Extenſors, prevent their turning the Toes inwards, or acting alone they turn them outwards, and draw the Thigh inwards; and as theſe direct, the ſame Extenſors will turn the Thigh either outwards, or backwards, with their full force.

Muſcles of the Leg.

FASCIALIS or *Membranoſus*, ariſes from the fore-part of the Spine of the *Ilium*, and in about Four Inches progreſs becomes a flat Tendon or *Faſcia*, which is joyn'd by a conſiderable detachment from the Tendon of the *Gluteus maximus*, and then covering in an eſpecial manner the *Vaſtus externus* Muſcle, grows connected at the top of the *Fibula* and the upper part of the Muſcles ſituate on the outſide of the *Tibia*, and then about the middle grows looſe, and is ſo continu'd to the top of the Foot, being connected to the Ligaments which tye down the Tendons; this Tendon where it covers the *Vaſtus externus*, receives additional tranſverſe Fibres, which run round the Thigh, but are more conſpicuous on the outſide. This draws the Leg outward.

GRACILIS, ariſes from the *Os Pubis* cloſe to the *Penis*, and is inſerted into the *Tibia* Four or Five Fingers breadth below the Knee. This draws the Leg inwards.

SARTORIUS, ariſes from the fore-part of the Spine of the *Ilium*, and thence deſcending obliquely to the inſide of the *Tibia*, is there inſerted Four or Five Fingers breadth below the Joynt. This at once helps to bend both the Thigh and Leg, ſo as Taylors lay the Legs a-croſs.

SEMITENDINOSUS, ariſes from the obtuſe Proceſs of the *Iſchium*, and growing a round Tendon in ſomewhat more than half its progreſs, is inſerted near the former Muſcles into the *Tibia* to bend it.

SEMIMEMBRANOSUS, ariſes by a flat Tendon like a Membrane from the obtuſe

Proceſs of the *Iſchium*, and being continu'd tendinous betwixt the Bellies of the laſt mention'd and following Muſcles, and then growing fleſhy, becomes again tendinous above the Joynt, and is inſerted with the former Muſcle for the ſame Uſe. Theſe Two make the internal Hamſtring.

BICEPS TIBIÆ, the firſt Head ariſes in common with the Two preceding Muſcles from the obtuſe Proceſs of the *Iſchium*; the ſecond from the lower part of the *Linea Aſpera* of the Thigh-bone; this ſoon joyns the former. and is inſerted with it into the upper part of the *Fibula* to bend the Leg. The Tendon of this Muſcle, makes the external Hamſtring.

POPLITEUS, ariſes from the outer *Apophyſis* of the *Os Femoris*, and thence running obliquely inwards, is inſerted into the *Tibia* immediately below its Head. This aſſiſts the Flexors, and draws the *Tibia* towards the outer *Apophyſis* of the Thigh-bone, whereby they make an obtuſe Angle, and the Leg becomes Perpendicular to the Center of Gravity in progreſſion.

RECTUS TIBIÆ, ariſes with a Tendon from the upper part of the *Acetabulum* of the *Os Innominatum*, and by another Tendon (which is a ſort of Ligament to this) from an obſcure Proceſs of the *Ilium* below its Spine forwards, and is inſerted together with the Three following Muſcles into the *Patella*.

VASTUS *Externus*, ariſes from the anterior part of the great *Trochanter* and outſide of the *Linea Aſpera* of the Thigh-bone, and is inſerted into the upper and external part of the *Patella.*

VASTUS *Internus*, ariſes from the inner and lower part of the *Linea Aſpera*, and is inſerted into the upper part of the *Patella.*

CRUREUS, ariſes between the Two laſt and under the *Rectus* from all the convex part of the O*s Femoris*, and is inſerted in like manner into the *Patella*; the *Patella* being ty'd down by a ſtrong Ligament to the *Tibia.* Theſe Muſcles extend that Bone, and might all be reckon'd One *Extenſor Quadriceps.*

When the *Patella* is fractur'd tranſverſe, theſe Muſcles draw up the Part they are inſerted into; ſo that the two Parts of the Bone cannot be brought together again: Hence theſe Fractures are incurable.

GASTEROCNEMIUS, ariſes by Two ſmall Beginnings from the back-part of the *Apophyſes* of the *Os Femoris*, which ſoon becoming large Bellies unite, and then becoming a flat Tendon joyns the following Muſcles to be inſerted into the *Os Calcis.* The two parts of this Muſcle, are by ſome Writers diſtinguiſh'd into Two Muſcles.

PLANTARIS, ariſes under the outer Beginning of the laſt nam'd Muſcle from the external *Apophyſis* of the *Os Femoris*, and ſoon becoming a ſmall Tendon, is ſo continu'd betwixt the foregoing and ſubſequent Muſcles, and is inſerted with them.

Authors derive the Tendinous expanſion on the bottom of the Foot from the Tendon of this Muſcle; But ſeeing the Expanſion is much more than this Tendon cou'd make, and that we never cou'd trace it farther than the *Os Calcis*, and that we find the Expanſion as large when the Muſcle is wanting, which is not ſeldom, we cannot be of that Opinion.

GASTEROCMENIUS *Internus*, ariſes from the upper part of the *Tibia* and one third of the *Fibula* below the *Popliteus*, and is inſerted with the Two foregoing Muſcles by a ſtrong Tendon into the upper and back-part of the *Os Calcis*. Theſe Muſcles extend the *Tarſus*.

TIBIALIS *Anticus*, ariſes from the upper and exterior part of the *Tibia*, and is inſerted laterally into the *Os Cuneiforme majus* of the *Tarſus*. This bends and turns the *Tarſus* inwards.

TIBIALIS *poſticus*, ariſes under the Flexors of the Toes from the middle of the *Fibula* and the Ligament betwixt the *Tibia* and *Fibula*, then growing a round Tendon, paſſes under the inner Ancle, and is inſerted into the lower part of the *Os Naviculare*. This extends and turns inwards the *Tarſus*.

PERONEUS *Longus*, ariſes from the upper and outer part of the *Fibula*, and growing a Tendon towards the lower part of this

Bone, paſſes under the outer Ancle and the Muſcles ſituated on the bottom of the Foot, and is inſerted into the beginning of the Metatarſal Bone of the great Toe. This turns the *Tarſus* outwards, and directs the force of the other Extenſors of the *Tarſus* towards the Ball of the great Toe.

PERONEUS *Brevis*, ariſes from the middle of *Fibula* under a part of the former, and growing tendinous, paſſes under the outer Ancle, and is inſerted into the beginning of the *Os Metatarſi* of the Little Toe.

This Muſcle ſometimes beſtows a ſmall Tendon upon the Little Toe.

Muſcles of the Great Toe.

EXTENSOR POLLICIS *Longus*, ariſes from the middle and lower part of the *Fibula* and *Ligamentum Tranſverſale*, and ſoon becoming a ſtrong Tendon, is inſerted into the laſt Bone of the Great Toe.

EXTENSOR POLLICIS *Brevis*, ariſes from the upper part of the *Os Calcis*, and is inſerted into the ſame place with the former.

FLEXOR POLLICIS *Longus*, ariſes from the *Fibula* and Ligament oppoſite to the *Extenſor longus*, and is inſerted to the under ſide of the laſt Bone of the Great Toe.

FLEXOR *Brevis*, and *Adductor Pollicis*, are the ſame Muſcle, ariſing from the two leſſer *Oſſa Cuneiformia* and *Os Cuboides*, and is inſerted into the *Oſſa Seſamoidea*, and they are ty'd to the firſt Bone of the Great Toe.

Abductor Pollicis, ariſes pretty large from the inner and back-part of the *Os Calcis*, and by a ſmaller Beginning from the *Os Naviculare*; thence paſſing forwards contiguous to the *Os Cuneiforme majus*, becomes inſerted into the external Seſamoid-Bone of the Great Toe. This Muſcle is not an *Abductor*, but a *Flexor Pollicis pedis*, as is evident from its Inſertion.

Transversalis Pedis, ariſes from the lower End of the Metatarſal-bone of the Toe next the leaſt, and is inſerted into the internal Seſamoid-bone. This is truly an *Adductor*, and helps both to keep the Conſtricture of the bottom of the Foot, and to correct and determine the Action of the *Abductor Pollicis*.

Muſcles of the Four leſſer Toes.

Extensor Digitorum Pedis *Longus*, ariſes acute from the upper part of the *Tibia* and from the upper and middle part of the *Fibula* and Ligament between theſe Bones; then dividing into Five Tendons, Four of 'em are inſerted into the ſecond Bone of each leſſer Toe, and the fifth into the beginning of the Metatarſal-Bone of the leaſt Toe. This laſt portion, for the moſt part, in ſuch Perſons as have not been us'd to wear ſtiff Shoes, is ſeparate at its beginning, and in them may be accounted a diſtinct Muſcle. However, it is certain (from its Inſertion) that it is a Flexor of the *Tarſus*.

We often meet in Diſſection, with a Tendon from this to the Little Toe.

EXTENSOR DIGITORUM *Brevis*, ariſes together with the *Extenſor Pollicis brevis* from the *Os Calcis*, and dividing into Three ſmall Tendons, is inſerted into the ſecond Joynt of the Three Toes next the great One. The long Extenſor of all the Toes ſerve not to extend them only, but alſo contributes to the bending of the Ancle, which Motions are uſually perform'd together in Progreſſion; but the ſhort Extenſors ariſing below the Ancle, extend the Toes only; and if the long Extenſors are imploy'd in that Action, the Extenſors of the *Tarſus* muſt act at the ſame time, to prevent the bending of the Ancle; this is the reaſon why the Toes have need, tho' their Motion is leſs, of more Extenſors than the Fingers.

FLEXOR *Brevis* or *Perforatus*, ariſes from the under and back-part of the *Os Calcis*, thence paſſing towards the Four leſſer Toes, divides into Four Tendons, which are inſerted into the beginning of the ſecond Bone of each leſſer Toe. Theſe Tendons are divided to let thro' the Tendons of the following Muſcle.

Authors mention another Beginning of this Muſcle; but that is a portion of the following Muſcle, and not of this, as will appear both from Diſſection and Reaſon; for it lying under the *Perforans*, cannot be perforated for the Tendons of that Muſcle, ſeeing they are inſerted above it.

Flexor *Longus* or *Perforans*, ariſes from the back-part of the *Tibia* under the Inſertion of the *Popliteus*, thence deſcending to the bottom of the Foot becomes a Tendon, which croſſes and, in moſt Bodies, communicates with the *Flexor longus Pollicis Pedis*, then dividing into Four Tendons, they paſs thro' thoſe of the laſt deſcrib'd Muſcle to their Inſertion into the third Bone of each of the Four leſſer Toes.

The ſecond Beginning of this Muſcle ariſes from the *Os Calcis*, and joyns the Tendons where they divide.

Lumbricales, ariſe from the Tendons of the *Perforans*, and are inſerted into the firſt Bone of each of the leſſer Toes, which they bend.

Abductor *Minimi digiti Pedis*, ariſes with the *Perforatus* from the *Os Calcis*, and by a ſecond Beginning from the Metatarſal Bone of the Little Toe, and is inſerted laterally into that Toe. This is not an *Abductor*, but a *Flexor*; For no Man can draw his Little Toe from the reſt, tho' this Muſcle is large.

Interossei, are Four Pair of Muſcles which cannot be divided, ariſing from the ſides of the Metatarſal Bones, and the inſide of the firſt of the Great Toe; thoſe of the leſſer Toes run to the upper part of each, to be connected at the ſecond Joynt, and be inſerted into the third Bone. Theſe extend the Toes; but that which goes to the Great

Toe ends in the firſt Joynt, and aſſiſts the *Flexors.*

NB. *The following Muſcle ſhou'd have been placed before the Muſcles of the Loyns* p. 73.

COCYGEUS, ariſes from the acute Proceſs of the *Os Iſchii*, and is inſerted into the *Os Cocygis*, which it pulls forward.

TABLE VII.

1 F*Rrontalis.*

2 *Maſtoideus.*

3 *Coracobrachialis.*

4 *Sternohyoideus.*

5 Part of the *Trapezius.*

6 *Deltoides.*

7 *Pectoralis.*

8 Part of the *Serratus Major anticus.*

9 *Obliquus deſcendens.*

10 The Portions of the *Recti*, the Left being diveſted of its *Faſcia.*

11 *Pyramidales.*

12 *Biceps Cubiti Flexor.*

13 *Bracheus Flexor.*

14 *Triceps Extenſor.*

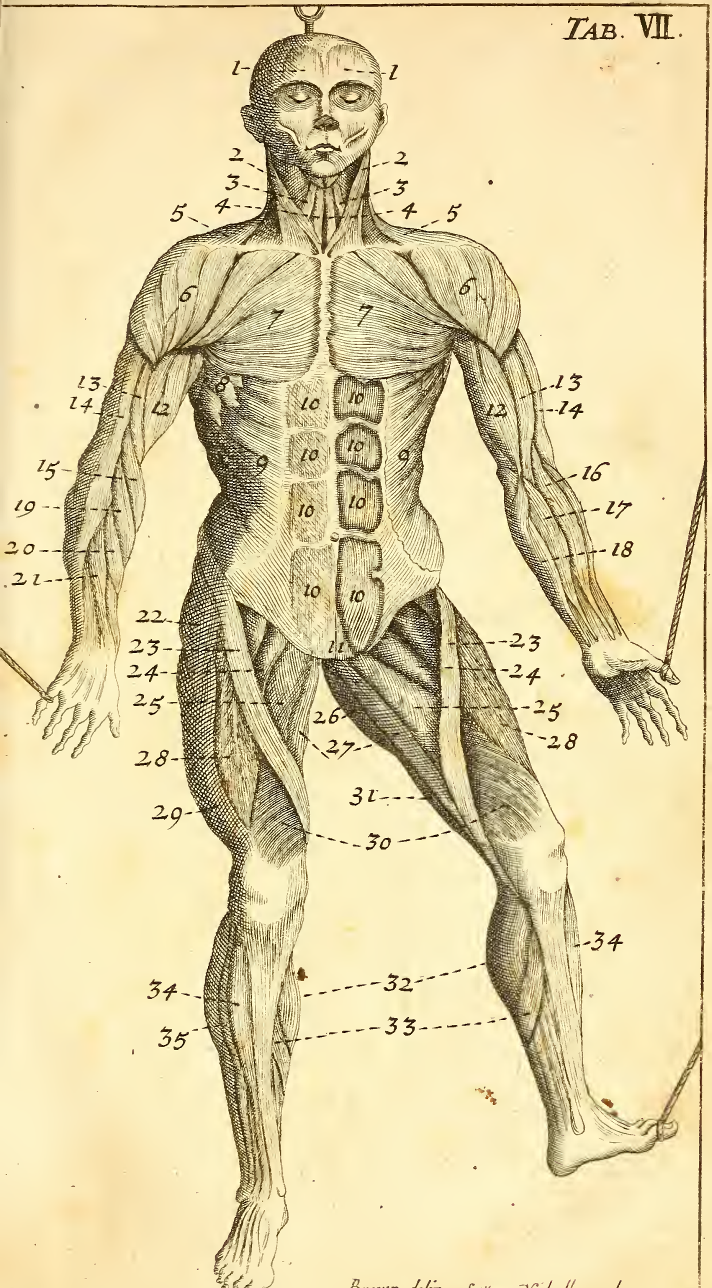
15, 16 *Supinator Radii Longus.*

17 *Flexor Carpi Radialis.*

18 *Flexor Carpi Ulnaris.*

19 The firſt Head of the *Extenſor Carpi Radialis.*

Tab. VII.



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20 The ſecond Head of the ſame Muſcle.

21 *Extenſor Digitorum Communis.*

22 *Faſcialis* or *Membranoſus.*

23 *Sartorius.*

24 One Head of the *Triceps.*

25 *Pectineus.*

26 The great Head of the *Triceps.*

27 *Gracilis.*

28 *Rectus,*

29 *Vaſtus Externus.*

30 *Vaſtus Internus.*

31 *Semitendinoſus.*

32 *Gaſterocnemeus.*

33 *Soleus.*

34 *Tibialis Anticus,*

35 *Tenſor Pollicis Pedis Longus.*

TABLE. VIII.

MUSCLES of the FACE.

A, F*Rontalis.*

B, *Temporalis.*

C, *Maſſeter.*

D, *Orbicularis.*

E, *Sphincter Oris.*

F, *Elevator Labii ſuperioris proprius.*

G, *Elevator Labiorum communis.*

H, *Depreſſor Labiorum communis.*

I, *Depreſſor Labii inferioris proprius.*

K, *Zygomaticus.*

L, *Buccinator.*

M, The Right Eye, with its Muſcles.

N, *Obliquus ſuperior.*

O, The *Trochlea.*

P, *Obliquus inferior.*

Q, *Elevator Oculi.*

R, *Depreſſor Oculi.*

S, *Adductor Oculi.*

T, The

TAB. VIII.

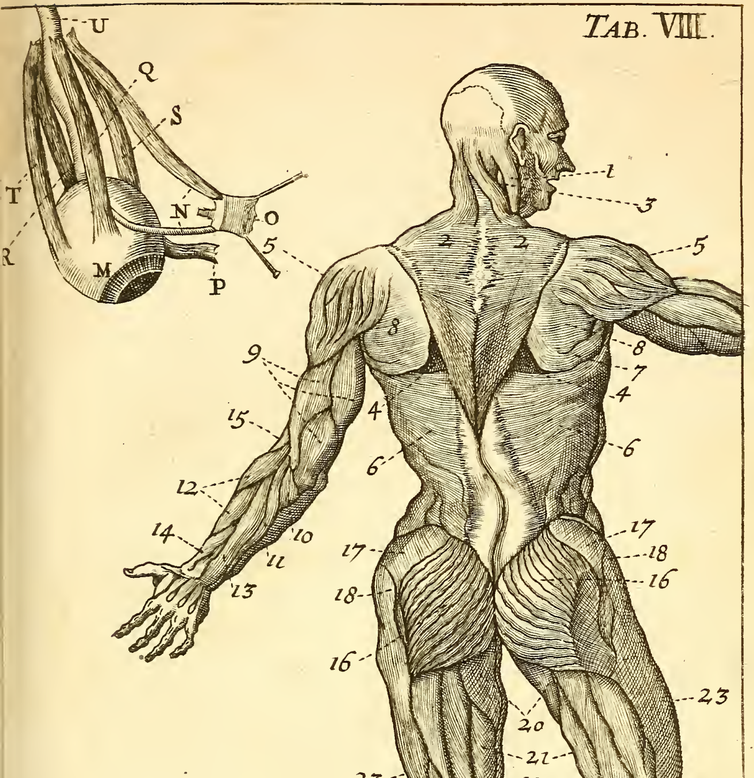

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Table VIII.

T, *Abductor Oculi.*

V, The Optick Nerve.

A View of the Poſterior External MUSCLES.

1 M*Aſtoideus.*
2 *Trapezius.*
3 A ſmall part of the *Elevator Scapulæ.*
4 Part of the *Rhomboides.*
5 *Deltoides.*
6 *Latiſſimus Dorſi.*
7 *Teres Major.*
8 *Infraſpinalis Scapulæ.*
9 *Triceps extenſor Cubiti.*
10 *Anconeus.*
11 *Extenſor Carpi Vlnaris.*
12 *Extenſor Carpi Radialis.*
13 *Extenſor Digitorum Communis.*
14 *Extenſor Primi Internodii Pollicis.*
15 A ſmall part of the *Supinator Radii longus.*
16 *Gluteus Maximus.*
17 *Guteus Medius.*
18 *Membranoſus* or *Faſcialis.*
19 *Gracilis.*
20 The great Head of the *Triceps.*
21 *Semimembranoſus.*
22 *Semitendinoſus.*
23 *Biceps Tibiæ.*
23 *Vaſtus Externus.*
24 *Gaſterocnemeus.*
25 *Soleus.*

TA-

TABLE IX.

A, A View of the upper-ſide of the DIAPHRAGM: From Dr. *Douglaſs*.

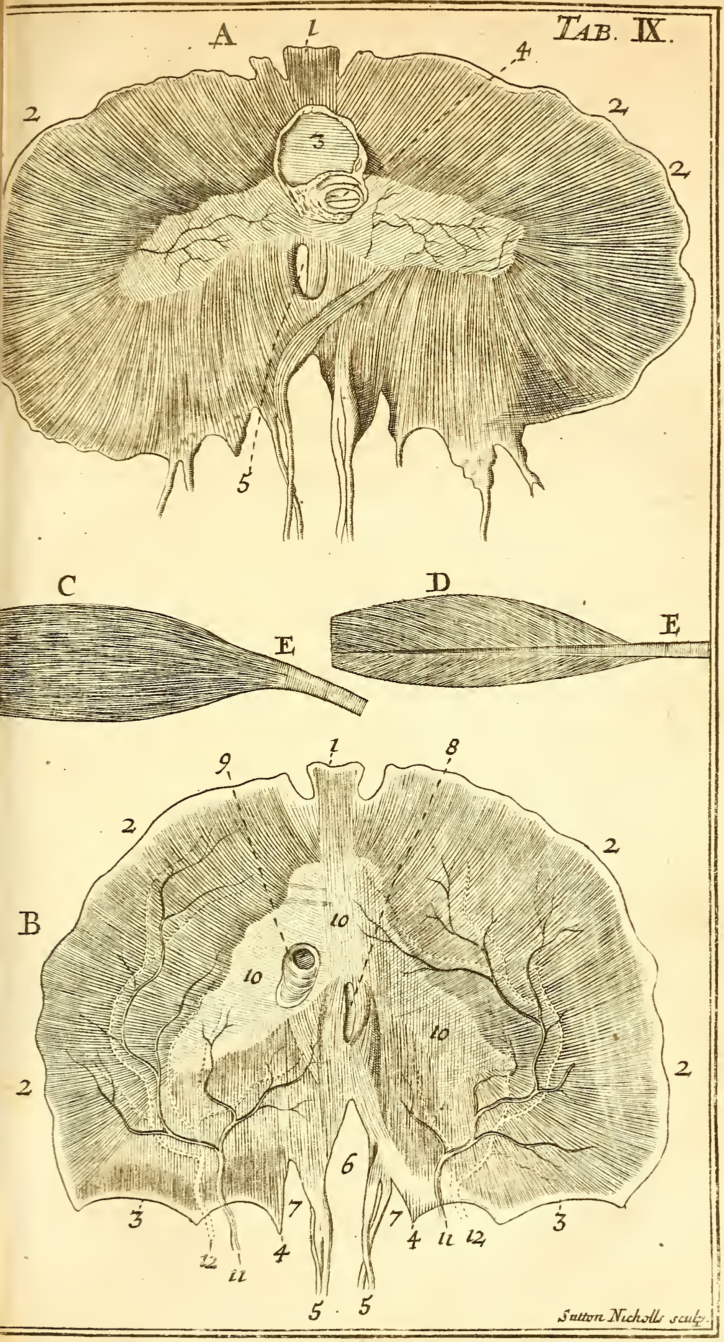
1 ITS Inſertion to the *Cartilago Enſiformis*.
2 Its Inſertion to the Cartilages of the lower Ribs.
3 The *Pericardium* adhering to it.
4 The *Valvula nobilis* of the *Cava aſcendens*.
5 The Perforation for the paſſage of the *Pharynx*.

B, A View of the under-ſide of the *Diaphragm*: From Dr. *Douglaſs*.

1 Its Inſertion to the *Cartilago Enſiformis*.
2 It's inſertion to the Cartilages of the lower Ribs.
3 Its Inſertion to the laſt Rib.
4 Its Origin from the ſides of the *Vertebræ*.
5 Its Proceſſes that ariſe from the *Vertebræ*.
6 The place where the great Artery deſcends, and the *Ductus Thoracicus* aſcends.
8 The Perforation for the deſcent of the *Pharynx*.
9 The Perforation for the aſcent of the *Cava aſcendens*.
10 A particular Order of Fibres.
11 The Phrenic Artery.
12 The Phrenic Vein.

C, A portion of Longitunal Fibres.
D, A Penniforme Muſcle.
E E, Their Tendons.

Tab. IX.



Sutton Nicholls sculp.

BOOK III.

CHAP. I.

Of the External Parts, and common Integuments.

Chapter I.

THE Vulgar Names of the External Parts of the Human Body being ſufficiently known for the Deſcription of any Diſeaſe or Operation; we ſhall only Deſcribe thoſe which Anatomiſts have given for the Illuſtration of the ſub-contain'd Parts.

The hollow on the middle of the *Thorax*, under the Breaſts, is call'd *Scrobiculus Cordis*. The middle of the *Abdomen* for about three Fingers breadth above and below the Navel, is call'd *Regio Umbilicalis*. The middle part above this, *Epigaſtrium*. On each ſide of the *Epigaſtrium* under the Cartilages of the lower Ribs, *Hypochondrium*; and from below the *Regio Umbilicalis* down to the *Oſſa Ilia*, and *Pubis*, *Hypogaſtrium*.

CUTICULA, or *Scarf-Skin*, is that thin inſenſible Membrane which we raiſe by Bliſtering in living, and by actual Cauteries in dead Bodies: It is extended over every part of the true Skin, unleſs where the Nails are.

If we examine it with a Microſcope, it appears full of very ſmall Pores, and Scaly. *Lewenhook* reckons, That in one Scale there may be 500 Pores, and that a Grain of Sand will cover 250 Scales; ſo that a Grain of Sand will cover 135000 Pores, thro' which we Daily perſpire. Its Uſe is to defend the true Skin that it may not be expos'd to Pain from whatever it touches; and alſo to preſerve it from wearing: On this account, the Cuticle is ſo contriv'd, as to grow in proportion to the Friction it receives, as we may obſerve, it being thickeſt on thoſe parts of the bottom of the Foot which ſuſtain the Body, and in Hands much us'd to Labour; and thinneſt of all on the Lips, if that Membrane may be call'd *Cuticula.*

Reticulum mucoſum.

Between this and the true Skin, is a ſmall quantity of Matter nam'd *Recticulum Mucoſum*, it is moſt conſiderable where the *Cuticula* is thickeſt, and is black, white, or dusky, ſuch as is the Complexion; the Colour of this, being the only difference between *Uropians* and *Africans* or *Indians*, the Fibres of the true Skin being alike white in all Men; but the florid Colour in the Cheeks, is owing to the Blood in the minute Veſſels of the Skin, and that in the Lips to the Veſſels in the Muſcular Fleſh, for the *Cuticula* being made of excrementitious Matter, has no Veſſels.

CUTIS or *True Skin*, is a very compact, ſtrong, and ſenſible Membrane, extended over all the other Parts of the Body having Nerves in great plenty terminating in all its Superficies which are the Organs of the Senſe of Touching. Theſe Terminations tho' inviſible are call'd *Papillæ Pyramidalis*, becauſe they appear ſo in ſome Brutes.

Papillæ Pyramidales.

GLANDULÆ MILIARES, are ſmall Glands like Millet Seeds, ſituated immediately under the Skin in the Axilla's, they are ſuppos'd to ſeparate the *Materia Perſpirabilis*, which is there thrown off in greater plenty than in any other Part of the Body. It is a generally receiv'd Opinion, That they are in like manner ſeated under all parts of the Skin: But ſeeing no Glaſſes, nor Diſeaſes have diſcover'd them, we cannot but doubt of their exiſtence in every part, eſpecially, when we conſider the whole Body Perſpirable.

MEMBRANA ADIPOSA, is all that Membrane under the Skin which contains Fat in Cells; it is the thickeſt on the *Abdomen* and Buttocks, and thinneſt neareſt the Extremities; and where the Muſcles adhere to the Skin, none; as on the Forehead. It contributes to keep the anterior Parts warm, and by filling the Interſtices of the Muſcles, renders the Surface of the Body ſmooth and beautiful.

MAMMÆ, the *Breaſts*, are of the ſame ſtructure in both Sexes; but largeſt in Women. They are a number of ſmall Glands to ſeparate ~~Milk~~, ſeated in the *Membrana adipoſa*, with their Excretory Ducts tending to toward the Niple, which as they approach, they unite and make but a few Ducts at their exit.

There is to be met with in Authors Inſtances, ſufficiently atteſted, of Mens giving Suck, when they have been excited by a vehement Deſire of doing it. And it is a common Obſervation, That Milk will flow out of the Breaſts of new-born Children, both Male and Female. We have known one Bitch give ſuck to the Puppies of another, when herſelf has had none, nor given ſuck to any for more than a Year before.

CHAP. II.

Of the MEMBRANES *in general.*

EVERY Bowel and Cavity in the Body is cover'd and lin'd with a ſingle Membrane, whoſe thickneſs and ſtrength is as the bulk of the Part it belongs to, and as the Friction it is naturally expos'd to.

Thoſe Membranes that contain the Bowels, keep the parts of the Bowels they contain together, and render the ſurface ſmooth, and not ſubject to be velicated by the Actions of the Body. Thoſe which line Cavities, ſerve to render the Cavities ſmooth, and fit for the Parts they contain to move againſt.

The Membranes of all the Cavities that contain ſolid Parts, are ſtudded with Glands which ſeparate a *Mucus* to make the Parts contain'd move glibly, and not grow together. And thoſe Cavities which are expos'd to the Air, as the Noſe, Ears, Mouth, and *Trachea Arteria*, have their Membranes beſet with Glands, which ſeparate Matter to defend them from the outer Air. *For the Membranes which have proper Names, and thoſe which compoſe Veſſels, See their proper* Chapters.

CHAP. III.

Of the MEMBRANES *of the Two Lower Venters.*

PERITONEUM, is a fine Membrane lining all the Cavity of the *Abdomen*, except the under ſide of the Diaphragm, which is cover'd with its own proper Membrane: Internally it is ſmooth and equal; but not ſo externally, by reaſon of its coheſion to the adjacent Parts; it is extended backwards over the great Veſſels and Urinary Parts in a looſe manner, like a *Membrana adipoſa*; and over the *Pelvis* of the *Abdomen* on the upper part of the Bladder of Urine. It contains the Liver, Splene, Pancreas, BOOK III. creas, Stomach, Guts, Omentum and Meſentery, with all their Veſſels and Glands.

This Membrane has the repute of being double: But what is miſtaken for one *Lamina* of it, is the flat Tendons of the *Tranſverſales* Muſcles. Between theſe the Water is contain'd in the Dropſy of the *Peritoneum.*

We open'd a Woman, which in two places one above and one below the Navel, contain'd three Gallons of Water; the *Peritoneum* was rotten, and near three Inches thick. Glands. In this Body the Glands of this Membrane might be ſeen with the naked Eye.

For the *Umbilical Veſſels*, See Chap. *Of the Fœtus*. For the *Proceſſus Vaginalis*, Chap. *Of the Parts of Generation in Men.*

PLEURA, is a fine Membrane lining the Cavity of the *Thorax*, except on the Diaphragm, (which is cover'd with no other than its own proper Membrane) the back-part of it is extended over the great Veſſels, like the *Peritoneum.* It ſerves to render the inſide of the *Thorax* ſmooth and equal.

MEDIASTINUM, is a thin ſmooth Membrane dividing the *Thorax* lengthways down from the *Sternum* to the *Pericardium* and *Pleura.* This Membrane divides both before and behind, and becomes continuous to the *Pleura* on each ſide; it is ſo diſpos'd as to make each Cavity exactly fit for the Lungs, and conſequently, to need leſs Circumambient Air; alſo by keeping the Two

Lobes of the Lungs aſunder, and prevents any Diſorder in the one, from affecting the other.

Chapter IV.

Chap. IV.

Of the Salivary Glands.

PAROTIS or *Maxillaris ſuperior*, is the largeſt of the Salivary Glands; it is ſituate behind the Lower Jaw under the Ear, its Excretory Ducts paſſes over the upper part of the *Maſſeter* Muſcle, and enters the Mouth thro' the middle of the *Buccinator*. This Gland has its Saliva promoted by the Motions of the Lower Jaw.

If the Duct of this Gland be divided by an external Wound, the *Saliva* will flow out on the Cheek, unleſs a convenient Perforation be made into the Mouth, and then the external Wound may be heal'd.

Mr. *Ferne*, while I was his Apprentice, had Two Patients with this Gland Ulcerated, from which there was a conſtant effuſion of *Saliva*, 'till he conſum'd the greateſt part of the Gland with *Red Mercury Precipitate*, and then it heal'd with little trouble. *Hildanus* mentions the ſame Caſe, which for Two Years had been under the Care of a Chyrurgion without Succeſs; and at laſt cur'd by the application of an actual Cautery.

BOOK III.

Maxillaris *inferior*, is ſituate between the Lower Jaw and the Tendon of the Digaſtrick Muſcle; its Duct paſſes under the *Muſculus Mylohyoideus*, and enters the Mouth under the Tongue near the *Dentes inciſorii.* This Gland is compreſs'd in the time of Maſtication by all the circumambient Parts.

We was at the opening of a Woman who was Suffocated by a Tumor which begun in this Gland; it extended itſelf from the *Sternum* to the Parotid Gland on one ſide in Six Weeks time, and in Nine Weeks kill'd her. It was a true Schirous, and weigh'd Twenty ſix Ounces.

In a Man which we Diſſected, we found a quantity of *Pus* near this Gland, and a Bundle of Matter not unlike Hair, as large as an Hen's Egg.

A Woman which was my Maſter's Patient in the Hoſpital, had a great number of Chalk Stones in this Gland. The like Concretions we have met with in other Places in Bodies which we have Diſſected.

Sublingualis, is a ſmall Gland ſituated under the Tongue between the Jaw and the *Ierataglоſſus* Muſcle; it ſends its Duct into that of the *Maxillaris inferior.*

Tonsilla, is a Globular Gland about the bigneſs of a Hazel-Nut, ſituate upon the *Pterygoideus internus* Muſcle between the Root of the Tongue and the *Uvula*; it has no Duct diſtant from itſelf, but empties all its ſmall Ducts into a *Sinus* of its own, which

Sinus, when the Gland is inflam'd, is often miſtaken for an Ulcer. This Gland with its Fellow, directs the maſticated Aliment into the *Pharynx*; and alſo ſerves for the *Vvula* to ſhut down upon when we breathe thro' the Noſe. They are compreſs'd by the Tongue, and the Aliment, when the former raiſes the latter over its Root, and thereby opportunely emit their *Saliva* to lubricate the Food for its eaſier deſcent thro' the *Pharynx*.

A Schirous Tumor of either of theſe Glands, is a common Diſeaſe, and it admits of no Remedy but Extirpation: Yet it muſt not be perform'd upon the whole Gland, but ſo much of it as is become ſupernaturally eminent; becauſe that wou'd render it unfit for the afore-mention'd Uſes.

GLANDULA *in Orbite Oculi*, is a pretty large Gland, ſituated between the Elevator and Abductor Muſcles of the Eye. The Antients eſteem'd it a Lacrymal Gland; but ſome Moderns reckon it among the Salivary. *Nuck* ſays, That he has obſerv'd in a Sea-Calf, a Duct from it into the Mouth on the outſide of the Grinding-Teeth, But whether that is or no a ſufficient Reaſon to give it the Name of a Salivary Gland in Men, we leave our Reader to judge. But we ſuſpect it to be either a Lacrymal Gland, or of the Tribe of Glands accompanying the *Lymphaticks*.

To theſe, we add the Membrane which lines the Mouth and compoſes the Palate and *Uvula* (tho' theſe latter, eſpecially the *Uvula*, ſeem to have Muſcular Fibres) which is ſtudded with ſmall Glands to afford *Saliva* in all parts of the Mouth to keep it moiſt; for thoſe more remote, are chiefly concern'd in time of Maſtication. Theſe ſmall Glands have Names given 'em according to their reſpective ſituations; as *Buccales*, *Labiales*, *Linguales*, *Fauciales*, *Palatinæ*, *Uvulares*.

CHAP. V.

Of the OMENTUM, DUCTUS ALIMENTALIS *and* MESENTERY.

OMENTUM or CAWL, is a fine Membrane larded with Fat, ſomewhat like Net-work: It is ſituated on the ſurface of the ſmall Guts, and reſembles an Apron tuck'd up; its outer or upper part
Ala ſuperior. nam'd *Ala ſuperior*, is connected to the bottom of the Stomach, the Splene, and part of *Inteſtinum duodenum*; and thence deſcending a little lower than the Navel, is reflected and ty'd to the *Inteſtinum Colon*, the Splene, and part of the *Duodenum*: This laſt
Ala inferior. part is call'd *Ala inferior*; and the Space between

between each *Ala*, is nam'd *Burſa*. Sometimes we find both *Alæ* ty'd to the Liver; and in Diſeas'd Bodies, to the *Peritoneam*. Its Uſe is, to keep warm and lubricate the Guts for their better performing their Periſtaltick Motion.

Burſa.

In Dropſies of the *Abdomen*, and in Perſons who from any other Cauſe, have dy'd Tabid, we have found it rotten and decay'd, and not ſeldom, the Guts adhering to one another: But whether theſe Adheſions proceed from the *Omentum*'s ceaſing to perform its Office, or from the Periſtaltick Motion of the Guts being long diſcontinu'd thro' Abſtinence, or both, we think not neceſſary to Diſpute.

DUCTUS ALIMENTALIS, is the *OEſophagus*, Stomach, and Guts, *viz. Duodenum*, *Jejunum*, *Ilium*, *Colon*, *Cæcum* or *Apendicula Vermiformis*, and *Rectum*.

OESOPHAGUS or *Gullet*, is the Beginning of the Alimentary Duct; its upper part is wide and open, ſpread behind the Tongue to receive the maſticated Aliment; it begins from the Baſis of the Scull, near the *Proceſſus Pterygoides* of the Sphenoidal-bone, and is call'd by ſome Anatomiſts *Muſculus Pterygopharyngeus*; this deſcending becomes round, and is call'd *Vaginalis Gulæ*; it runs from the Tongue cloſe to the Spine, into and thro' the *Thorax* on the left ſide under the great Artery, then piercing the Diaphragm, immediately enters the Stomach. It is compoſ'd of a thin outer Coat, which is no more than a proper Membrane to the middle or Muſcular Coat. The middle Coat, is compoſ'd of a Spiral Order of Muſcular Fibres, abundantly thicker than the ſame Coat in the Inteſtines; both becauſe this has no foreign power to aſſiſt it, as the Guts have, and becauſe it is neceſſary the Food ſhou'd make a ſhorter ſtay here than there. The inner Coat, is a pretty ſmooth Membrane, beſet with many Glands, which ſecrete a Mucilaginous Matter, both to defend the Membrane, and render the deſcent of the Aliment leſs difficult.

VENTRICULUS, the *Stomach*, is ſituated under the left ſide of the Diaphragm, its left ſide touching the Splene, and its right cover'd by the thin Edge of the Liver; its figure exactly reſembles the pouch of a Bagpipe, its left End being moſt capacious, the upper Side concave, and the lower convex; it has two Orifices, both on its upper part; the left (thro' which the Aliment paſſes into the Stomach) is nam'd *Kardia*; and the right (thro' which it is convey'd out of the Stomach into the *Duodenum*) is nam'd *Pylorus*, where there is a circular Valve to hinder the return of Aliment out of the Gut.

Kardia.

Pylorus.

The Coats of the Stomach, are but Three; the external Membranous, the middle Muſcular, whoſe Fibres are chiefly Longitudinal and Circular, the inner Membranous, and beſet with Glands, which ſeparate that *Mucus*, which is falſely call'd *Membrana Quarta* or *Villoſa*. As the Muſcular Coat of the Stomach contracts, the inner Coat falls into folds, which conveniently retard the Aliment when the Stomach becomes almoſt empty.

DUODENUM, is the firſt of the Three ſmall Guts; it begins from the *Pylorus* of the Stomach, and is thence reflected downward, it firſt paſſes by the Gall-bladder, and then under the following Gut and Meſentery, and coming in ſight again in the left *Hypochondrium*, it commences *Jejunum*, which is the ſecond of the ſmall Guts.

JEJUNUM, is ſo call'd from its being found for the moſt part empty; it's ſituated in the *Regio Umbilicalis*, and makes ſomewhat more than a third part of the ſmall Guts. It may be known from the following Gut, by obſerving its Coats, which are a ſmall Matter thinner, and leſs pale.

ILIUM, is the Continuation of the former, ſituated in the *Hypogaſtrium*, and very often ſome part of it in the *Pelvis* of the *Abdomen*, upon the Bladder of Urine, eſpecially: In Women it enters the *Colon* on the right Side, near the upper Edge of the *Os Ilium*.

COLON, is the firſt of the great Guts; it begins at the upper Edge of the right *Os Ilium*; thence aſcending, paſſes under ſome part of the Liver, and the bottom of the Stomach from the right *Hypochondrium* to the

left,

left, and thence deſcends to the *Pelvis Abdominis.*

CÆCUM or *Apendicula Vermiformis*, is ſituated on the Beginning of the *Colon*; it is leſs than an Earth-worm, with a ſmall Orifice opening into the *Colon.* This Gut has ſeldom any thing in it.

The Beginning of the *Colon*, is vulgarly call'd the blind Gut, it ſeeming to have but one entrance when the Valves are ſhut againſt the *Ilium.* And we are apt to think, Modern Anatomiſts have made a Miſtake in calling the *Apendicula Vermiformis, Cæcum*; ſeeing they reckon it among the great Guts.

In Dogs, Cats, and Squirrils it is very large: And ſome Fiſh have 'em in great number; we have counted in a Mackarell, above 150.

RECTUM, is the Continuation of the *Colon* thro' the *Pelvis* to the *Anus.*

The Coats. The Guts have the ſame Coats with the Stomach; the Fibres of their middle or Muſcular Coat, are either Circular, Spiral, or Longitudinal; of the latter, but very few. The great Guts, have at equal diſtances a ſtreight Membrane on their outſide running their whole length, call'd Ligaments; theſe Ligaments draw the Guts into ſmall *Sacculi.* The leſſer Guts, have at very ſmall diſtances Semilunar Valves plac'd oppoſite to the Interſtices of each other; theſe prevent the Aliment from paſſing too ſpeedily. But Brutes

Valves.

have 'em not: becauſe they are not neceſſary to an Horizontal Poſture. At the Entrance of the *Ilium* into the *Colon*, are Two very large Valves, which effectually hinder the regreſs of the *Fæces* into the *Colon*; the other Valves in the *Colon*, are plac'd oppoſite (but not in the ſame Plane) to each other, and make with their anterior Edges an Equilateral Triangle; but as the Gut approaches the *Anus*, they become leſs remarkable, and fewer in number.

Glands.

All the Guts have in their inner Membrane an almoſt infinite number of inviſible Glands, which ſeparate the *Mucus* that defends the Guts. Theſe Glands will, ſome of 'em eſpecially in the large Guts, appear to the naked Eye when they are diſeas'd, and are then call'd *Glandulæ Pyerianæ.*

The length of the Guts to that of the Body, is as Five to One, in a middle-ſiz'd Man; in taller Men, the proportion is leſs, and in ſmall Men greater.

MESENTERY, is a Membrane beginning looſely upon the Loyns, and is thence produc'd to all the Guts: It preſerves the *Jejunum* and *Ilium* from twiſting in their Periſtaltick or Vermicular Motion, and confines the reſt to their Places; it ſuſtains all the Veſſels going to and from the Guts, *viz.* *Arteries*, *Veins*, *Lymphæducts*, *Lacteals* and *Nerves*, and alſo contains many Glands, call'd from their ſituation *Meſentericæ.*

Glandulæ Meſentericæ.

CHAP-

CHAP. VI.

Of the LIVER, GALL-BLADDER, PANCREAS *and* SPLENE.

THE LIVER, is the largeſt Gland in the Body, of a dusky-red Colour, it is ſituated immediately under the *Diaphragm* in the right *Hypochondrium*; its exterior ſide is convex, and interior concave; backwards towards the Ribs it is thick, and thin on its fore-part where it covers the upper ſide of the Stomach, and effectually defends it from being injur'd by the *Cartilago Enſiformis*; the upper ſide of it adheres to the *Diaphragm*, and is alſo ty'd to it and the *Sternum* by a thin Ligament, which is deſcrib'd commonly as Two; the upper part call'd *Suſpenſorium*, and the anterior *Latum*; either of which Names, were ſufficient for it all: It is alſo ty'd to the Navel by a round Ligament call'd *Teres* or *Umbilicale*, which is the Umbilical-Vein degenerated into a Ligament; it begins at the Navel, and is inſerted into the Liver at a ſmall Fiſſure in its lower Edge. The *Ligamentum Latum* or *Suſpenſorium*, ſuſtains the Liver in an erect Poſture, or rather fixes it in its Situation, while it is ſupported by the interior Parts, they being compreſs'd by the Abdominal Muſcles; when we lie down, the *Teres* prevents it from

The Ligaments of the Liver.

from preſſing on the *Diaphragm*; and when we lie on our Backs, they both together ſuſpend it, that it may not compreſs and cauſe an Obſtruction in the aſcending *Vena Cava*. Its Blood-Veſſels, that compoſe it as a Gland, are the *Porta* (which receives Blood from all the Parts contain'd in the *Abdomen* (*Vid. Vena Portæ*) and here re-diſtributes it to have the Bile ſecreted from it) and the Branches of the *Cava* in the Liver, which return the redundant Blood into the *Cava aſcendens*; it has alſo Arteries call'd *Hepaticæ*, and ſeveral Branches of Nerves, and a great number of Lymphaticks: Of which we ſhall ſpeak in their reſpective Places.

The Blood-Veſſels of the Liver.

The GALL-BLADDER, is a receptacle of Bile, ſeated in the hollow-ſide of the Liver; it is compos'd of one denſe Coat not Muſcular, and cover'd with another, which is common to it and the Liver.

The Excretory Ducts of the Liver leading to the Gall-Bladder, are, the *Cyſtihepatici*, which paſs in great number into it, and ſo ſmall as not to be ſeen by the naked Eye: From the Gall-Bladder towards the *Duodenum*, runs a Duct call'd *Cyſticus*; and from the Liver to this Duct, one call'd *Hepaticus*, which carries off the Gall this way, when the Gall-Bladder is full; then the *Ductus Cyſticus* and *Hepaticus* being united, commence *Ductus communis Choledochus*, which enters the *Duodenum* obliquely about Four Inches below its Beginning. The Orifice of this

Ductus Cyſtihepatici.

Ductus Cyſticus.

Ductus Hepaticus.

this Duct in the Gut is ſomewhat eminent, but has no Caruncle.

The Situation of the Gall-Bladder is very remarkable; for it being ſeated againſt the *Duodenum*, it will have its Fluid preſs'd out by the Aliment paſſing thro' that Gut, and conſequently, not only at a right Time, but alſo in due Proportion; becauſe the greater the quantity of Aliment is, the greater will be the Compreſſion; and ſo the contrary.

PANCREAS, the *Sweet-Brede*, is a large Gland of the Salivary-kind, lying a-croſs the upper and back-part of the *Abdomen*, alongſide the *Duodenum*, it is what the Antients call'd a Conglomerate Gland, appearing ſo (without Diſſection) to the naked Eye; it has a ſhort Excretory Duct, not more than half ſo large as a Crow-quill, (tho' it is commonly painted as large as the *Ductus communis Choledochus*) which enters the *Duodenum* very near the Bile Duct, and not ſeldom, together with it.

The Juice of this Gland, together with the Bile, ſerves to attenuate the fluid Particles of the digeſted Aliment, and render it fit for the Lacteals.

The SPLENE, is ſeated in the left *Hypochondrium*, immediately under the *Diaphragm*, and above the Kidney, between the Stomach and the Ribs; it is ſupported by the ſub-contain'd Parts, and often fix'd to its Place by a ſmall adheſion to the *Peritoneum*;

neum; it is alſo connected to the *Omentum*, as has been obſerv'd. The Figure of it is a ſort of depreſs'd Oval, near twice as long as broad, and almoſt twice as broad as thick: Sometimes it is divided into Lobules, but for the moſt part, has only one or two ſmall Fiſſures on its Edge, and ſometimes none; in its Colour, it reſembles Caſt-Iron. The inner Texture is Veſicular, like the *Penis*; theſe Cells have in 'em ſmall Glands and grumous Blood. This Bowel has no Excretory Duct, that we can diſcover, and all the Uſe that we can aſſign to it, is to retard the Blood in its courſe to the Liver, that it may there arrive viſcid and languid enough for the Secretion of ſo thick a Fluid as is the Bile.

Coats.

Obſervations.

The LIVER, ordinarily weighs, in a middle-ſiz'd Man, about Three Pounds, Twelve Ounces, the *Pancreas* Three Ounces, and the Splene Fourteen Ounces.

The SPLENE, we have taken out of a Dog, without any remarkable inconvenience to him.

We have found Three Splenes in a Woman that was executed.

We have ſeen a diſeas'd Liver in a Man, that weigh'd Fourteen Pounds, Four Ounces.

In a Boy but Nine Years old, that dy'd Hydropick, we found the Liver full of *Hydatids*, and with Cyſts of *Hydatids* adhering to it, which together weigh'd Seven Pounds, One Ounce and a Half, tho' ſeveral Pints of Water had been let out of it before. The Splene, in the ſame Boy, together with *Hydatids* contain'd in its Membrane, weigh'd Three Pounds.

In a Man, we have found a diſeas'd Splene weighing Five Pounds, Two Ounces.

In an old Man Six Foot high, we have found a ſound Liver, weighing no more than Twenty-eight Ounces, and the Splene Ten Ounces.

In a Man that had been afflicted with a Dropſy, and cur'd, we have found a *Polypus* almoſt filling the large Branches of the *Porta* in the Liver, and a Stone between the Liver and Gall-Bladder, larger than a Nutmeg.

In a Man that dy'd of a Jaundice, we found the *Ductus communis Choledochus*, conſtricted by a Schirous *Pancreas*. The Gall-Bladder was extended to the ſize of a Gooſe-Egg, and all the Ducts to twice their natural bigneſs. This Caſe afforded a beautiful ſight of the *Cyſtihepatick* Ducts to the naked Eye.

We have met with an Obſtruction in the *Ductus Syſticus*, without any remarkable inconvenience; the Bile being in that Caſe, carry'd off thro' the *Ductus Hepaticus* without entering the Gall-Bladder.

CHAP.

CHAP. VII.

Of the VASA LACTEA.

VASA LACTEA, are the *Venæ Lacteæ*, *Receptaculum Chyli* and *Ductus Thoraicus*.

VENÆ LACTÆ, *&c*, are a vaſt number of very fine pellucid Tubes, beginning from the ſmall Guts, and proceeding thence thro' the Meſentery, frequently unite, and form fewer and larger Veſſels, which firſt paſs thro' the meſenterick Gland, and then into the *Receptaculum Chyli*; theſe Veſſels e'er they arrive at the Meſenterick Glands (or in Brutes the *Pancreas Aſſellii*, which is theſe Glands collected) are call'd *Venæ Lacteæ primi generis*; and thence to their entrance into the *Receptaculum Chyli*, *Venæ Lacteæ*, *ſecundi generis*. The Office of theſe Veins is, to receive the fluid part of the digeſted Aliment, and convey it to the *Receptaculum Chyli*, that it may be thence carry'd thro' the *Ductus Thoracicus* into the Blood-Veſſels.

RECEPTACULUM CHYLI, is a Ciſt of irregular Make, into which the *Venæ Lacteæ* empty the Chyle; it is ſeated between the Diaphragm and Emulgent-Veſſels on the left ſide of the firſt Lumbal *Vertebra*.

DUCTUS THORACICUS, is a delicate pellucid Tube, large as a Gooſe-Quill, beginning from the *Receptaculum Chyli*, and ending in the Subclavian-Vein. This Duct as it aſcends thro' the *Thorax*, firſt paſſes on the left ſide of the great Artery under the Beginnings of the *Intercoſtals*, and about the middle of the *Thorax*, divides for the ſpace of Two or Three Inches, and uniting again, runs on the ſide of the *Pharynx* into the left Subclavian-Vein. It has many Valves at unequal diſtances, (more in Men than Brutes) to prevent the regreſs of the Fluid it contains, and One very large Valve there is in the Subclavian-Vein to cover its entrance.

The Chyle is diluted in its paſſage by the Lymph. *Vid.* Chap. *Of the Lymphaticks.*

CHAP. VIII.

Of the LUNGS, PERICARDIUM, *and* HEART.

THE LUNGS, are compos'd of Two Lobes, One ſeated on each ſide of the *Mediaſtinum*, each of which Lobes are ſub-divided into Two or Three Lobules; they are each Compos'd of very ſmall *Veſiculæ*; which *Veſiculæ*, are the Extremities of the *Aſpera Arteria* or *Bronchos*. The Figure of theſe Cells is irregular; yet the ſides of 'em are exactly fitted to each other, ſo as to leave no void Space: In the Membranes of theſe *Veſiculæ* are diſtributed the Branches of the Pulmonary Artery and Vein,and here have their Blood impregnated with Air, and its coher'd *Globuli* ſeparated. Of which, *Vid.* Chap. *Of the Courſe of the Aliment and Fluids.*

PERICARDIUM or *Heart-purſe*, is an exceeding ſtrong Membrane, beginning at the Baſis of the Heart above the great Veſſels, and conſequently, not perforated by 'em; its lower ſide is inſeparable from the Tendinous part of the Diaphragm, but not ſo in Brutes: It contains the Heart, and hinders it from being miſplac'd in violent and unnatural Motions of the Body; for if when we ſtand on our Hands or Heads, the Heart ſhou'd, as it wou'd by its own weight, turn the Point downwards in that Poſture; the Blood-Veſſels going out of it, wou'd be doubled and obſtructed, as the *Ductus Arterioſus* is by altering its Poſition after the Birth; and what Conſequence this wou'd be of to the Animal OEconomy, is obvious enough; for Death muſt enſue in a little time. Another Uſe this has, which is to contain a quantity of Lymph ſufficient for the lubricating the external Fibres of the Heart.

The HEART, is a Muſcle of a Conick Figure, with Two Cavities or Ventricles; it Baſis is fix'dby the Veſſels going to, and from it upon the fourth and fifth *Vertebra* of the *Thorax*, and its *Apex*, or Point is inclin'd downwards and to the left ſide, where it is receiv'd in a Cavity of the left Lobe of the Lungs, as may be obſerv'd the Lungs being extended with Air, this Incumbrance on the left Lobe of the Lungs, is the Cauſe of that Side's being moſt ſubject to Pluretick Pains; for what we call Plureſy, is a true *Peripneumonia* or Inflamation of the Lungs.

Auricles.

At the Baſis of the Heart on each ſide, is ſituated the Two Auricles to receive the Blood; the right from the Two Cava's, and the left from the Pulmonary-Veins: In the right, at the meeting of the Cava's, is an Eminence call'd *Tuberculum Loweri*, this is chiefly rais'd by the ſuccumbent Pulmonary Artery and Vein. Its Uſe is to prevent the Blood in both theſe Veſſels from obſtructing each other, and to direct the Courſe of the Blood in both of 'em into the Auricle; immediately below this Tubercle, in the ending of the *Cava aſcendens*, is the *veſtigium* of the *Foramen Ovale*; (*Vid.* Chap. *Of the Fœtus*) and above this, in the Auricle, the Mouth of the Coronary-Veins. The left Auricle is abundantly leſs than the right; but that defect is ſupply'd by a large Cavity, which the Two Veins from the Lungs afford in that place; and in both Auricles are *Columnæ*, like thoſe in the Ventricles, but ſmaller.

Tuberculum Loweri.

The

Ventricles.

The Ventricles or Cavities in the Heart which receive the Blood, are hollow Muſcles, or Two Cavities in One Muſcle, whoſe Fibres, like the Muſcles of the *Abdomen*, are differently directed, that the preſſure they give in the Syſtole or contracting Motion, may be equal in all Parts, they are both of the ſame bigneſs, tho' the left appears the ſmalleſt, and is commonly deſcrib'd ſo; but this happens from a greater Contraction in the left than the right, in the Article of Death, the left being abundantly thicker, becauſe a greater force is requir'd to drive the Blood thro' the whole Body, than thro' the Lungs. Over the Entrance of the Auricles in each Ventricle, are plac'd Valves to hinder a return of Blood while the Heart contracts. Thoſe in the right Ventricle are nam'd *Tricuſpides*, thoſe in the left *Mitrales*. One of theſe do further Service, by covering the Mouth of the *Aorta* while the Ventricle fills; which is neceſſary in this Ventricle, that the Blood in the ſyſtole or contracting Motion may be acted upon with greater force. The inner Fibres of each Ventricle are diſpos'd into ſmall Cords, which we call *Columnæ*: From ſome of theſe ſtand ſmall portions of Fleſh call'd *Papillæ*; theſe *Papillæ* are ty'd to the Valves with ſlender Fibres, by means of which, the Valves are rais'd in the Diaſtole of the Heart, the *Papillæ* being then fartheſt remov'd from the Entrance of the Auricles. *For the Courſe of the Blood*

Valves.

Columnæ.

Papillæ.

Blood thro' this Part, (Vid. Chap. *Of the Courſe of the Aliment and Fluids.*

In the beginning of each Artery from the Heart, is plac'd Three Valves, which look forwards and cloſe together to hinder a regreſs of Blood into the Ventricle. Thoſe in the Pulmonary-Artery, are nam'd *Sigmoidales*, thoſe in the Aorta *Semilunares. Canalis Artirioſus. (Vid.* Chap. *Of the Fœtus).*

Obſervations.

In a Boy we found a great quantity of *Pus* in the *Pericardium*, and the Baſis of the Heart Ulcerated.

In Perſons that have dy'd of a Dropſy, we have always obſerv'd the Heart large, its Fibres lax, and the Veſſels about it immoderately diſtended, and Polypuſes ſometimes in both Auricles and Ventricles, and in the large Veins; but more frequently in the right Auricle and Ventricle.

We Diſſected a Man that dy'd Tabid, in whom we found the *Pericardium* univerſally adhering to the Heart, and a portion of the Muſcular part of the Heart Oſſefy'd as large as a Six-pence.

The beginning of the *Aorta*, we have frequently ſeen Oſſify'd, eſpecially, in Aged Perſons.

Adheſions of the Lungs to the *Pleura*, is ſo common, we know not how to call it a Diſeaſe; becauſe we find it more or leſs in all adult Perſons, and without any inconvenience, if they are not rotten.

Chapter
IX

CHAP. IX.

Of the ARTERIES *and* VEINS.

Arteria Pulmonalis.

FROM the right Ventricle of the Heart ariſes the Pulmonary Artery, which ſoon divides into Two Branches, One to each Lobe of the Lungs, and then they ſubdivide into very ſmall Branches, and are diſtributed into every part of the Lungs.

Arteria Pulmonalis.

From the extreme Branches of the Pulmonary Artery, ariſe the ſmall Branches of the Pulmonary Vein, which uniting as they approach the left Auricle of the Heart enter into its Appendix or Bag in a few Trunks, and the Blood being brought back from the Lungs by this Veſſel to the Heart, is thence thrown into the *Aorta*.

Aorta.

Aorta aſcendens.

Aorta deſcendens.

AORTA, or great Artery, ariſes from the left Ventricle of the Heart, and deals out Branches to every part of the Body. The firſt Trunk of this Veſſel, is call'd *Aorta aſcendens*; it paſſes over the left Pulmonary Artery, Vein and Branch of the *Aſpera Arteria*, and being reflected under the left Lobe of the Lungs, it commences *Aorta deſcendens*, which Name it keeps thro' the *Thorax* and *Abdomen*, where it deſcends on the left ſide of the Spine, till its diviſion into Iliacs upon the fourth *Vertebra* of the Loyns.

Arteriæ Coronariæ Cordis.

From under Two of the Semilunar Valves of the *Aorta*, which is e'er it leaves the Heart ariſes Two Branches (ſometimes but One) which are beſtow'd upon the Heart, and are ca~~ll'd~~ *Coronariæ Cordis*.

From the curv'd part of the *Aorta*, which is about Two Inches above the Heart, ariſe the Subclavian and Carotid Arteries, the right Subclavian and Carotid in One Trunk, but the left ſingle.

Arteriæ Carotides.

The Carotid Arteries run on both ſides the *Larynx* to the ſixth *Foramina* of the Scull, thro' which they enter to the Brain; but as they paſs thro' the Neck, they detach Branches to every part about 'em, which Branches are call'd by the Names of the Parts they are beſtow'd upon; as, *Laryngeæ*, *Thyroideæ*, *Pharyngeæ*, *Linguales*, *Temporales*, *Occipitales*, &c. but juſt before they enter the ſixth *Foramina* of the Scull, they each ſend Two ſmall Branches, One thro' the fifth *Foramina* of the Scull to that part of the *Dura Mater* which contains the *Cerebrum*; and One thro' a Hole between the eighth and ninth Hole of the Scull to that part of the *Dura Mater*, which contains the *Cerebellum*.

The Internal Carotids, or the Carotids within the Scull, ſend ſeveral Branches thro' the firſt and ſecond *Foramina* of the Scull (before they pierce the *Dura Mater*) to the Face and Parts contain'd within the Orbits, and then piercing the *Dura Mater*, they each divide into Two Branches; One of which they ſend under the *Falx* of the *Dura-Mater* between the Two Hemiſpheres of the Brain, and the other between the Anterior and Poſterior Lobes of the Brain. Theſe Branches take a great many turns, and divide into very ſmall Branches in the *Pia Mater* e'er they enter the Brain, becauſe large Trunks wou'd make by their Pulſe too great a preſſure upon ſo tender and delicate a Part.

Arteriæ Cervicales.

Beſides theſe Two Arteries, *viz.* the Carotids, the Brain has Two more, call'd *Cervicales*, which ariſe from the Subclavian Arteries, and aſcend to the Head thro' the *Foramina* in the Tranſverſe Proceſſes of the Cervical *Vertebræ*, and into the Scull thro' the tenth or great *Foramen*; the Two Arteries uniting ſoon after their entrance they give off Branches to the *Cerebellum*, and then paſſing forwards, divide and communicate with the Carotids.

Arteria Axillaris.

Arteria Humeralis.

The Subclavian Arteries, are each continu'd to the Cubit in one Trunk, which is call'd *Axillaris* as it paſſes the Arm-pits, and *Humeralis* as it paſſes the inſide of the *Os Humeri* between the Muſcles that bend and extend the Cubit.

Arteriæ Mammariæ.

From the Subclavians within the Breaſt ariſe the *Arteriæ Mammariæ*, which run on the inſide of the *Sternum*, and lower than the *Cartilago Enſiformis*.

As ſoon as the *Arteria Humeralis* has paſs'd the Joynt of the Cubit, it divides into Two

Branches, call'd *Cubitalis ſuperior* and *Cubitalis inferior*, which latter ſoon ſends off a Branch, call'd *Cubitalis media*, which is beſtow'd upon the Muſcles ſeated about the Cubit.

Cubitalis media.

Cubitalis Superior.

CUBITALIS *Superior*, paſſes upon the *Radius* and round the Root of the Thumb, and gives One Branch to the Back of the Hand, and Two to the Thumb, One to the firſt Fingers, and a Branch under the Tendons of the Fingers to communicate with the *Cubitalis inferior*.

Cubitalis inferior.

CUBITALIS *Inferior*, paſſes upon the *Ulna* to the Palm of the Hand, where it makes a turn, and ſends One Branch to the out-ſide of the Little Finger, another between that and the next Finger, dividing to both. Another in the ſame manner to the Two Middle-Fingers, and another to the Two Fore-Fingers. Theſe Branches which are beſtow'd on the Fingers, run One on each ſide of each Finger internally to the Top, where they communicate.

Arteriæ Intercoſtales.

From the deſcending *Aorta* on each ſide is ſent a Branch under every Rib, call'd *Intercoſtalis*, and about the fourth *Vertebra* of the Back it ſends off Two Branches to the Lungs, call'd *Bronchiales*, which are ſometimes both given off from the *Aorta*, ſometimes one of 'em from the Intercoſtal of the fourth Rib on the right ſide; and as the *Aorta* paſſes under the Diaphragm, it ſends Two Branches into the Diaphragm, call'd

Arteriæ Phrenicæ.

Arteriæ Phrenicæ, which ſometimes riſe in one Trunk from the *Aorta*, and ſometimes from the *Celiaca*; but oftner the right from the *Aorta*, and the left from the Celiac.

Arteria Celiaca.

Immediately below the Diaphragm ariſes the Celiac Artery from the Aorta, it ſoons divides into ſeveral Branches, which are beſtow'd upon the *Liver*, *Pancreas*, *Splene*, *Stomach*, *Omentum* and *Duodenum*. Theſe Branches are nam'd from the Parts they are beſtow'd on, except Two that are beſtow'd upon the Stomach, which are call'd *Coronaria ſuperior* and *inferior*, and the Branch beſtow'd upon the *Duodenum*, which is nam'd *Inteſtinalis*.

Meſenterica ſuperior.

At a very ſmall diſtance below the *Arteria Celiaca* from the *Aorta* ariſes the *Meſenterica ſuperior*, whoſe Branches are beſtow'd upon all the *Inteſtinum Jejunum*, and *Ilium*, part of the *Colon*, and one Branch upon the Liver.

Arteriæ Emulgentes.

A little lower than the ſuperior Meſenteric Artery, ariſes the Emulgents, which are the Arteries of the Kidneys.

Arteriæ Spermaticæ.

And a little lower than the Emulgents, forwards from the *Aorta*, ariſes the *Arteriæ Spermaticæ*. *Vid.* Chap. *Of the Parts of Generation in Men.*

Arteriæ Lumbares.

Lower laterally, the *Aorta* ſends Branches to the Loyns, call'd *Lumbares*, and one forwards, to the lower part of the *Colon* and the *Rectum*, call'd *Meſenterica inferior*.

Arteriæ Meſentericæ.

Arteriæ Communicans.

Between the *Arteria Meſenterica ſuperior* and *inferior* and the Branches of each, there are communicant Branches to convey the Blood from one to another when they are either compreſs'd in any poſture, or ſtreighten'd by being ſtretch'd out in Ruptures, or from any other Cauſe.

Arteria Sacra.

As ſoon as the *Aorta* divides upon the Loins, it ſend off an Artery into the *Pelvis* upon the *Os Sacrum*, call'd *Arteria Sacra*, and the Branches they divide into, are *Iliacæ*; which in about Two Inches ſpace divide into External and Internal.

Arteriæ Iliacæ Internæ.

Iliacæ *Internæ*, firſt ſend off the Umbilical Arteries which are dry'd up in adult Bodies, except near their Beginnings which are kept open by the collateral Branches on each ſide, One to the Bladder, and One to the *Penis* in Men, and in Women the *Uterus*; the reſt of this Trunk is beſtow'd upon the Buttocks, and upper part of the Thigh.

Iliacæ Externæ.

Arteriæ Epigaſtricæ.

Arteria Inguinalis.

Arteria Muſcula.

The Iliacæ *Externæ*, run over the *Oſſa Pubis* into the Thighs; and as they paſs out of the *Abdomen*, they ſend off Branches, call'd *Epigaſtricæ*, to the fore-part of the Integuments of the *Abdomen* under the *Recti* Muſcles. And the Epigaſtric Arteries ſend each a Branch into the *Pelvis*, and thro' the *Foramina* of the *Oſſa Innominata* to the Muſcles thereabouts. As ſoon as the Iliac Artery is paſs'd out of the *Abdomen* into the Groin, it is call'd *Inguinalis*, where it ſends a large Branch to the upper and back-part of the Thigh, call'd *Muſcula*; but the great Trunk call'd *Cruralis*, is continu'd internally between the Flexors and Extenſors of the Thigh, and paſſing thro' the Inſertion of the *Triceps* Muſcle into the Ham, is there call'd *Poplitea*; then below the Joynt it divides into Two Branches, One of which is call'd *Tibialis antica*, it paſſes between the *Tibia* and *Fibula* to the fore-part of the Leg, and is beſtow'd upon the Great Toe, and One Branch to the next Toe to the Great One, and another between theſe Toes to the *Tibialis poſtica*; which Artery ſoon after it is divided from the *Anticus*, ſends off the *Tibialis media*, which is beſtow'd upon the Muſcles of the Leg, while the *Tibialis poſtica* goes to the bottom of the Foot and Toes. The *Tibialis antica*, is diſpos'd like the *Cubitalis ſuperior*; the *Poſtica*, like the *Cubitalis inferior*; and the *Media* in each, have alſo the ſame Office.

Arteria Cruralis.

Arteria Tibialis antica.

Tibialis poſtica.

Tibialis media.

Theſe are the Arteries which are alike in all Bodies; and as they paſs, they ſend collateral Branches to the Parts which are neareſt.

The Veins ariſe from the Extremities of the Arteries, and make up Trunks which accompany the Arteries in almoſt every part of the Body, and have the ſame Names in the ſeveral Places which the Arteries have which they accompany.

Veins.

The Veins of the Brain unload themſelves into the Sinuſes, (*Vid.* Chap. *Of the Brain.*) and the Sinuſes into the internal Jugulars and Cervicals, the internal Jugulars and Cervicals into the Subclavians, which joyning, make the *Cava deſcendens.*

Venæ Jugulares internæ.

The Internal Jugulars are ſeated by the Carotid Arteries, and receive the Blood from all the Parts which the Carotids ſerve, except the Hairy-ſcalp and Face, whoſe Veins enter into the External Jugulars, which run immediately under the *Platyſma Myoides* or *Muſculus Quadratus Genæ*, often Two on each ſide.

Venæ Jugulares externæ.

Venæ Cervicales.

The Cervical Veins, deſcend Two thro' the *Foramina* in the Tranſverſe Proceſſes of the *Cervical Vertebræ*, and Two thro' the great *Foramen* of the Spine, One on each ſide the Spinal Marrow; theſe joyn at the loweſt *Vertebra* of the Neck, and then empty into the Subclavians, and at the Interſtices of all the *Vertebræ* communicate with one another.

The Veins of the Arm, are the ſame in Number, Situation, and Name, that the Arteries are, beſides thoſe that appear immediately under the Skin; as the Veins of the Fingers, which run chiefly to the back of the Hand, and the Four at the bend of the Elbow, the uppermoſt of which is call'd *Cephalica*, the next *Mediana*, the next *Baſilica*, and the loweſt *Salvatela.* Theſe all communicate near the Joynt of the Elbow, and then ſend One Branch which is more directly from the *Cephalica*, and bears that Name into the External Jugular; it paſſes

Cephalica, Mediana, Baſilica, Salvatela.

paſſes immediately under the Skin, in moſt Bodies, between the Flexors and Extenſors of the Cubit on the upper ſide of the Arm. The other Branches joyning, and receiving thoſe which accompany the Arteries of the Cubit, paſs by the Artery of the Arm into the Subclavians.

In the *Thorax*, beſides the Two *Cava's*, there is a Vein call'd *Azygos* or *Vena ſine Pari*, it is made up of the Intercoſtal, Phrenic, and Bronchial Veins, and enters the deſcending *Cava* to divert the Blood in the *Cava* into the right Auricle.

In the *Abdomen*, beſides the Veins which are nam'd like the Arteries, there is One large one call'd *Vena Portæ*, which ariſes from all the Branches of the Celiac and Two Meſenteric Arteries, and uniting in one Trunk enters the Liver, and is there again diſtributed like an Artery, and has its Blood collected and brought into the *Cava* by the Branches of the *Cava* in the Liver. The Reaſon why NATURE has made uſe of a Vein inſtead of an Artery in this place is, becauſe the Blood in the Arteries ſo near the Heart, is too rapid to have ſo viſcid a Fluid ſeparated from it as the Bile. **Vena Portæ.**

In the Leg the Veins accompany the Arteries in the ſame manner as in the Arm, thoſe of the Foot being on the upper ſide, and from them is One call'd *Saphena*, which is continu'd on the inſide of the Limb it's whole length, and has ſeveral Names given it from the ſeveral Places thro' which it paſſes.

The Arteries divide, and the Veins unite, for the moſt part, at very acute Angles.

The Arteries are ſaid to have Three Coats, a middle Muſcular, and an external and internal Membranous. The Veins are ſaid to have the ſame; but we cou'd never divide 'em in either. In the inſide of the Veins their are many Valves, eſpecially in the lower Limb, to hinder a reflux of the Venal Blood.

The Arteries are, moſt of 'em, ſituated very deep for their ſecurity; but a great many of the Veins immediately under the Skin, that they may not have too much preſſure to hinder their dilating when the Blood by any Heat is rarify'd and expanded.

In a Woman that dy'd of a Dropſy, we found the Semilunar Valves of the *Aorta* cover'd with Chalk Stone, which not ſuffering the Valves to do their Office, the left Ventricle was always overcharg'd with Blood, which occaſion'd in that Ventricle an immoderate diſtention, and unfitneſs for its Office, which deſtroying the Oeconomy of the Body, occaſion'd a Dropſy.

Chapter X.

CHAP. X.

Of the LYMPHATICS, and GLANDS that accompany the Lymphatics.

LYMPHÆDUCTS, are ſmall pellucid cylindrical Tubes ariſing from the Extremities of all the Arteries; but more plentifully in Glands than other Parts, and in greateſt number from ſuch Glands as ſeparate the viſcideſt Fluids, as may be obſerv'd in the Liver and *Teſtes*; they have only one Coat, and that exceeding thin, having Valves at ſmall and uncertain diſtances, to prevent the regreſs of their Fluid. They have frequent communications like the Veins, but do not unite ſo often; the larger Trunks are every where attended with ſmall Glands, thro' which they run, and at the ſame time ſend communicant Branches over them, that they might be ſecur'd againſt Obſtructions from every Diſeaſe in the Glands. They all terminate in the *Via Lactea*, or in Subclavian Veins. All that ariſe below the Diaphragm, empty into the *Venæ Lacteæ* and *Receptaculum Chyli*; thoſe in the Cavity of the *Thorax* into the *Ductus Thoracicus*; and thoſe of the ſuperior Parts into the Subclavian Veins. Their Uſe is both to dilute the Chyle in the *Via Lactea*, and to carry off ſo much *Serum* as is neceſſary ry to leave the Blood in fit Temper to flow thro' the Veins; for we always obſerve in ſuch Perſons as have their Blood too thin, the *Globuli* for want of ſufficient Attrition, cohere and form *Moleculæ* or *Polypus's*.

Authors have hitherto deſcrib'd and painted theſe Veſſels like Strings of Popies: And ſuch they have appear'd to us, when injected with *Mercury*; becauſe the Coat of theſe Veſſels being exceeding thin, it ſuffers the *Mercury* to form itſelf into *Globuli* in the interſtices of the Valves, but when we have diſcover'd them by Air, or any other Fluid injected, they have appear'd as we have deſcrib'd 'em. Such alſo they may be ſeen without any Injection in the Meſentery of large Fiſh, where they ſeldom fail of being turgid.

Glandulæ Lymphaticæ

GLANDS accompanying the *Lymphatics*; are ſituated in the Three Cavities, in the Interſtices of the Muſcles, where the large Veſſels run, and in the Four Emunctories. In the Brain is ſeated the *Glandula Pinealis*, which we eſteem of this Sort, having often ſeen large *Lymphaducts* running into it from the *Plexus Choroides*, and at the Baſis of the Brain in the *Cella Turcica* is the *Glandula Pituitaria*, into which enters a large Lymphatick, nam'd *Infundibulum*. (*Vid.* Chap. *Of the Brain.*) At the upper part of the Cavity of the *Thorax*, upon the Subclavian Veins, is ſeated the Gland *Thymus*, thro' which a great number of theſe Veſſels paſs to the *Ductus Thoracicus* and the Subclavian Veins.

Chapter XI.

This Gland is remarkable for being leſs in an adult Body, than in a *Fœtus*. In a Dolphin and a Porpeſs, we have ſeen it full of Chyle.

Under the Baſis of the Heart, and at the ſide of the Lungs, where the great Veſſels enter, are many of theſe Glands, ſome bigger, and ſome leſs than a Pea. In the *Abdomen*, are a few near the Kidneys, call'd *Lumbales*; ſome on the hollow ſide of the Liver, nam'd *Hepaticæ*; and a great number in the Meſentery, nam'd *Meſentericæ*. In the Neck, accompanying the larger Veſſels, are a great number call'd, *Glandulæ Concatenatæ*. And Two very large ones, One on each ſide the *Aſpera Arteria* below the Thyroid Cartilage, call'd *Glandulæ Thyroideæ*. Theſe Glands of the Neck, and the Salivary Glands, are commonly affected in Strumous and Scrophulous Caſes. The Glands which accompany the Blood-Veſſels in the Limbs, are few, and diſtributed in no certain Order; but many in the Four Emunctories, *i. e.* in the Arm-pits and Groins, nam'd *Axillares* and *Inguinales*.

Brutes have ſome large ones in the Thigh commonly call'd the *Pope's-eye*; theſe are ſeated about the great Veſſels in the Thigh, where they paſs thro' the *Triceps* Muſcle. From this Situation, and not from any thing extraordinary in theſe Glands, it is that Wounds are there ſo dangerous.

What Uſe theſe Glands are of to the *Lymphæducts*, I confeſs, I don't know: The Uſe commonly aſſign'd is, to accelerate the Motion of their Fluids. But that does not ſeem probable; becauſe a ſtronger Coat wou'd have been the readieſt Means to produce that Effect; beſides theſe Veſſels never enter any of 'em without detaching a Branch over at the ſame time to prevent Obſtructions. Nor can Iconceive, if theſe Glands were endu'd with a Contracting Power, that ſuch a Power apply'd at uncertain Spaces, ſhou'd not rather obſtruct, than accelerate the Motion of Lymph in the Lymphatics.

CHAP. XI.

Of the DURA MATER *and* PIA MATER.

Proceſſus primus.

DURA METER, is a very compact ſtrong Membrane lining the inſide of the Scull, firmly adhering at its Baſis, and but ſlightly at the upper part.

It has Three Proceſſes, the firſt begins at the *Criſta Galli*, and runs backwards under the *Sutura Sagittalis* to the *Cerebellum*, dividing the *Cerebram* into Two Hemiſpheres. Its Uſe is, to ſupport one ſide of the *Cerebrum*

brum from preſſing on the other when the Head is inclin'd to one ſide. This Proceſs is from its figure, nam'd *Falx*. The ſecond runs from the lower and back-part of the former to the upper Edge of each *Os Petroſum*; and ſuſtains the Poſterior Lobes of the *Cerebrum*, that they might not compreſs the *Cerebellum*. The third is very ſmall ſometimes not to be diſtinguiſh'd; it runs from the laſt deſcrib'd Proceſs down towards the great *Foramen* of the Scull and poſſeſſes the ſmall ſpace in the *Cerebellum*, between the *Proceſſus Vermiformes*. Theſe Proceſſes of the *Dura Mater*, ſerve alſo to keep the Brain ſteaddy.

Falx.

Proceſſus ſecundus.

Proceſſus tertius.

This Membrane has alſo to be obſerv'd in it many Sinuſes, which are large Veins to receive the Blood from the leſſer Veins of the Brain: Their number is uncertain, and even thoſe that are conſtantly found, are not deſcrib'd in the ſame Order by Writers. The firſt that preſents itſelf is, the *Longitudinalis ſuperior*, running from a blind Hole a little above the *Criſta Galli* along all the upper Edge of the *Falx*. A tranſverſe ſection of this Veſſel is not Circular, like other Veſſels, but a Triangle whoſe ſides are Segments of a Circle; the upper ſide convex outwards, and the two lower convex inwards; this figure of the Veſſel, is preſerv'd by ſmall Ligaments running a-croſs in the inſide that it might not become conical, or cylindrical from the equal preſſure

Sinus Longitudinalis ſurpeior.

of the contain'd Blood, and thereby incommode the upper Edges of each Hemiſphere of the *Cerebrum*. On the lower Edge of this Proceſs, is ſometimes another very ſmall one, call'd *Longitudinalis inferior*; this runs into the *Rectus*, and when wanting, is ſupply'd by a Vein; *Rectus* runs between the Two firſt Proceſſes of the *Dura Mater*, and unloads with the *Sinus Longitudinalis ſuperior* into the Two lateral Sinuſes. The Place where theſe Sinuſes meet is commonly call'd *Torcular Hierophili*: There is ſometimes a ſmall one in the third Proceſs which empties in the ſame place with the former. From the *Torcular Hierophili* in the back-part of the ſecond Proceſs of this Membrane run the *Sinus Laterales*, which when they come to the *Os Petroſum*, dip down and paſs thro' the *Foramina octava* into the internal Jugular Veins. There is another nam'd *Circularis*, it runs round the fore-part only of the *Cella Turcica*, the two Ends of this empties into Four Sinuſes, one on the Top of each *Os Petroſum*, which paſſes into the *Sinus Laterales*, and one at the under ſides of the ſame Bones, which paſs indifferently into both the Lateral and Cervical Sinuſes; theſe Two laſt Sinuſes have always communicant Branches. The Cervical Sinuſes run from the Baſis of the Scull thro' the great Foramen on both ſides the *Medulla Spinalis Colli*, and thro' the Tranſverſe Proceſſes of of the *Cervical Vertebræ*; the laſt of theſe, have many

Longitudinalis inferior.

Torcular Hierophili.

Sinus Laterales.

Circularis.

Sinus Cervicales.

many times, proper *Foramens*, running from the Eighth *Foramina* to the back-part of the *Apophyſes* of the *Occipital* Bone. (*Vid. Os Occipitis.*) There is alſo Two more of theſe Veſſels, which run from the Circular Sinus between the *Os Sphænoides* and fore-part the *Os Petroſum* directly into the Internal Jugular Veins.

Sinus Innominati.

PIA MATER, is an exceeding fine Membrane immediately inveſting the Brain, even between its Lobes, Hemiſpheres and Folds. It ſerves to contain the Brain, and ſupport its Blood-veſſels, which run here in great numbers; the Arteries to divide into ſmall Branches that the Blood contain'd may not enter the Brain too impetuoſly; and the Veins to unite, that they may enter the Sinuſes without difficulty.

Some pretend, That there is another Membrane under the *Pia Mater*. Which we cou'd never diſcover; and therefore will not deſcribe.

We have once ſeen a large part of the *Dura Mater*, and once of the *Pia Mater* oſſify'd.

CHAP. XII.

Of the CEREBRUM, CEREBELLUM, MEDULLA OBLONGATA *and* MEDULLA SPINALIS.

CEREBRUM, is that part of the Brain which poſſeſſes all the upper and fore-part of the *Cranium*, being ſeparated from the *Cerebellum* by the ſecond Proceſs of the *Dura Mater*; its upper ſide is divided into Two Hemiſpheres, and its lower ſide into Four Lobes, Two call'd anterior, and Two poſterior, which latter are much the largeſt; at the meeting of the Four Lobes, appears the *Infundibulum*, which is a large Lymphatic running from the Ventricles of the Brain into the *Glandula Pituitaria*.

Hemiſpheres. Lobes. Infundibulum.

The GLANDULA PITUITARIA, is ſeated in the *Cella Turcica*. Immediately behind the *Infundibulum* appear Two ſmall Bodies, nam'd *Protuberantiæ albæ pone Infundibulum*. Between the Two Hemiſpheres of the *Cerebrum*, lower than the Circumvolutions, appears a White Body nam'd *Corpus Calloſum*. Under the *Corpus Calloſum*, appear the Two Lateral or Superior Ventricles, which are divided into right and left by a very thin Membrane, nam'd *Septum Lucidum*,

Glandula Pituitaria. Prot. Albæ, *&c.* Corpus Calloſum. Ventriculi ſuperiores.

Septum Lucidum, which is extended between the *Corpus Calloſum* and *Fornix*. The *Fornix* is a Medullary Body, beginning from the fore-part of theſe Ventricles, with Two ſmall Roots which ſoon unite; and running towards the back-part divide into Two parts, call'd *Crura Fornicis*. In the Baſis of theſe Two Ventricles, are Four Prominences, the Two anterior call'd (becauſe of their inner Texture) *Corpora Striata*. The other Two are nam'd *Thalami Nervorum Opticorum*. Beyond theſe, are Two more Proceſſes, call'd *Nates*: And under them nearer the *Cerebellum*, Two call'd *Teſtes*. On the upper part of the *Nates*, is ſituated the *Glandula Pineales*, famous for being made by *Des Chartes* the Seat of the Soul. And upon the *Thalami Nervorum Opticorum*, is a number of Blood-Veſſels, Glands, and Lympheducts, call'd *Plexus Choroides*. Under the beginning of the *Fornix*, is a ſmall *Foramen* call'd *Foramen ad Radices Fornicis*; under the middle of the *Fornix*, one call'd *Foramen anterius*; and another under the *Teſtes*, call'd *Foramen poſterius*, which is cover'd with a Valve nam'd *Membrana* or *Valvula major*; and the Space under the Two anterior Ventricles between the *Foramina*, is the third Ventricle.

Septum Lucidum.
Fornix.
Thalami Nerv. Opt.
Nates.
Teſtes.
Foramina.
Valvula major.
Ventriculus tertius.

CEREBELLUM, is ſituated under the ſecond Proceſs of the *Dura Mater*. By dividing this part of the Brain lengthways, we diſcover the fourth Ventricle, whoſe Extremity

Ventriculus quartus.

mity, is call'd *Calamus Scriptorius*; to theſe we obſerve Two Medullary Bodies, call'd *Pedunculi*, which are the Baſis of the *Cerebellum*.

Pedunculi.

The Subſtance of the Brain is diſtinguiſh'd into outer and inner; the former is call'd *Corticalis*, *Cinerea* or *Glanduloſa*, the latter *Medullaris*, *Alba* or *Nervea*.

MEDULLA OBLONGATA, is a Medullary Production on the under part of the *Cerebrum* and *Cerebellum*: It firſt appears in Two Bodies, from the anterior part of the poſterior Lobesof the *Cerebrum*, call'd *Crura Medullæ Oblongatæ*.

Crura Med. Ablongatæ.

The union of theſe *Crura* between the *Cerebrum* and *Cerebellum*, is call'd *Iſthmus*; and immediately beyond this, is an Eminence, nam'd *Proceſſus Annularis*.

Iſthmus.

Proceſſus Ann.

MEDULLA SPINALIS, is a Production of the *Medulla Oblongata* thro' the great *Foramen* of the Scull, and thro' the Channel of the Spine. The Coats of this Part are the ſame with the Brain; it is divided its whole length by a thin Membrane, and ſo we ſuppoſe, the *Medulla Oblongata*. The lower part of the *Medulla Spinalis*, is call'd *Cauda Equina*.

Cauda Equina.

Wounds in the *Cerebrum* are not Mortal; but in the *Cerebellum* and *Medulla Oblongata*, preſent Death; and in the *Medulla Spinalis*, loſs of Senſe in all the Parts which receive Nerves from below the Wound.

We have twice ſeen in the *Cerebrum* a Schirrous Tumor as large as a Pullet's Egg. And in another Body, Impoſtumations which poſſeſs'd near two Thirds of the Whole *Cerebrum*.

In a Perſon that dy'd with a *Gutta Serena*, we found all the Ventricles of the Brain full of Lymph; and the *Thalami Nervorum Opticorum* and the Optick Nerves, e'er they went out of the Scull, made flat with the preſſure.

In an old Man, we found the right Optick Nerve waſted, and black.

CHAP. XIII.

Of the NERVES.

THE NERVES, are in Number Forty Pair, Ten Pair of which ariſe from the *Medulla Oblongata* within the Scull, and are call'd Nerves of the Brain; the reſt from the *Medulla Spinalis*. Seven Pair of the Neck, call'd *Cervicales*. Twelve of the Back, call'd *Dorſales*. Five of the Loyns, nam'd *Lumbales*. And Six which paſs out of the *Os Sacrum*. They ſeem, when examin'd with a Microſcope, to be Bundles of ſtreight Fibres not communicating

Chapter XIII.

cating with one another: And we are inclin'd to think, that the minuteſt Branch of every Nerve is diſtinct from its very Origin, except where the Ganglions are, which ſeem to be juſt enow to make a perfect Communication thro' the whole Nervous Syſtem. Theſe Veſſels everywhere paſs in as Right Lines, as the Sructure of the Body will ſuffer; never dividing nor uniting, but at very acute Angles, without a Ganglion, and that at a great diſtance from the Part they are beſtow'd on. This we have carefully obſerv'd in the Figure of the Nerves.

The NERVES of the BRAIN, ariſe in Order: but from what Parts within the Brain, we do not pretend to know, tho' many Anatomiſts deſcribe 'em, as if they themſelves had trac'd 'em to their Beginnings; nor have they been leſs peremptory in the Deſcriptions of their Terminations, where they talk of Nervous Plexuſes, which can't happen from Lines drawn from one Point: Or if they cou'd; they cou'd not be known from other Fibres in the ſame Places, the Fibres of the *Plexuſes*, as they call 'em, being ſo very ſmall in the Places where they deſcribe 'em. But to do theſe Nice Authors Juſtice, it ſeems among them to be a common Name for Nerves, beyond where they can trace 'em.

The

Chapter XIII.

Par. primum Nervorum.

The firſt Pair of Nerves or *Proceſſus Mammillaris* of the Brain, are Medullary and Hollow, they paſs directly to the *Os Ethmoides*, thro' whoſe *Foramina* they are ſaid to paſs to the Membranes of the Noſe, and there be expanded for the Senſe of Smelling. I muſt own, I can by no means think 'em Nerves, but Aqueducts from the Ventricles with which they communicate. And what moſt inclines me to this Opinion is, their being largeſt in thoſe Animals that incline their Heads moſt to the Ground; as Calves, Sheep, *&c.* which are Creatures of no nice Senſe of Smelling.

Nervi Optici vel Par ſecundum.

The Second are the Optic, which are round and Medullary; they ariſe ſingle, and then uniting at the fore-part of the *Cella Turcica*, they divide again, and paſs out at the firſt *Foramina* of the Scull to the bottom of the Eyes, where they enter; and expanding themſelves, they form the *Tunica Retina*, upon which Objects are painted. (*Vid.* Chap. *Of the Eyes*).

Par tertium vel Oculorum Motorium.

The Third are ſmall, they paſs out of the ſecond *Foramina*, or *Foramina Lacera*, and are beſtow'd upon the Eyes, the Membranes, and Glands in the Orbits, and all the Muſcles, except the Superior oblique.

Par quartum vel Patheticum.

The Fourth are the ſmalleſt, and are call'd *Pathetici*; they go out of the ſecond *Foramina*, or *Foramina Lacera*, to the *Muſculi Trochleares*, or *Obliqui ſuperiores*, *Oculorum*.

Par quintum

The Fifth Pair, are the largeſt of all; after they have pierc'd the *Dura Mater*, they each form a Ganglion, and then ſend One Branch thro' the *Foramen Lacerum vel ſecundum* into the Orbits of the Eyes, thro which Branches are given to the Coats of the Eyes and Muſcles; and One thro' a Notch at the upper Edge of the Orbits to the Forehead. The next Branch, which is larger, paſſes thro' the third *Foramen* of the Scull, and a *Foramen* in the *Maxilla ſuperior* juſt under the Orbit of the Eye; this is beſtow'd upon the Face. The third, and largeſt Branch of this Nerve, is beſtow'd upon the Tongue, Jaws, Mouth, Noſe, Chin, Teeth, and all the Parts near the Jaws, and One ſmall Branch to the Cervicals. This Nerve we take to be both the Guſtatory and Olfactory.

Par ſextum

The Sixth Pair, ſend One Branch into the Orbits of the Eyes, and One thro' the ſixth *Foramina* of the Scull, which after joyns a Branch of the fifth, and is diſtributed to the Tongue and Neck.

Par ſeptimum vel Auditorium.

The Seventh Pair, are compos'd of a *Portio Dura*, and a *Portio Mollis*; both enter the Seventh *Foramina*. The latter is ſpread within the Ear for the Senſe of Hearing; and the former paſſes out behind the *Proceſſus Styliformis*, and is beſtow'd upon the Ears, Face, Tongue, and adjacent Parts.

Par Octav. vel Vagum.

The Eighth Pair, or *Vagum*, go out of the eighth *Foramina* of the Scull; but before they go out, they each receive a Nerve nam'd

Acceſſorius

Chapter XIII.

Acceſſorius from the ſuperior part of the *Medulla Spinalis*. They deſcend on both ſides the *Larynx* to the *Thorax*, where they each form a *Ganglion*, and return a Nerve, nam'd *Recurrens*, under the Subclavian Arteries to the *Larynx*, and another ſmall One, which joyns by a Ganglion the ſecond Dorſal Nerve. This we reckon the beginning of the deſcending Intercoſtal of which hereafter in this Chapter. The larger Trunk of this Nerve paſſing down by the ſide of the *Pharynx*, communicates with its Fellow beſtows Branches upon the Heart, Lungs and *Pharynx*, and is after beſtow'd upon the Stomach, Liver and ſome of the Inteſtines. The Branch which is given off to the ſecond Dorſal Nerve, is properly the beginning of the deſcending Intercoſtal, it receives a Branch from every tranſverſe Intercoſtal Nerve, which joyns it with a Ganglion, and from every One of theſe Ganglions, is given off a Branch, which uniting, form the Meſenteric Nerves: In what manner will be beſt ſeen in the Scheme of the Nerves, and how the Communication is made between all the Nerves of the ſame ſide.

Par nonum. The Ninth Pair of Nerves, go out of the Ninth *Foramina* of the Scull, and are beſtow'd upon the Muſcles thereabouts.

Par decimum. The Tenth Pair, go out between the Scull and the firſt *Vertebra*, and are diſtributed among the adjacent Parts. This Pair of Nerves are reckon'd among thoſe of the Scull, and not thoſe of the Spine, to which they truly belong, becauſe they do not ariſe double on each ſide and joyn with a Ganglion, as all the other Spinal Nerves do.

Nervi Cervicales.

The Four firſt Pair of Cervical Nerves, are beſtow'd upon the Neck and Shoulders; and from the Fifth, goes off Branches to the Diaphragm; which Branches as they Paſs, ſend off Branches to the *Sternum* and *Pericardium*. and the Fifth, Sixth and Seventh, with the firſt and ſecond of the Back, make the Subclavian Nerves. Theſe Two laſt deſerib'd, ſend off Branches under the Two firſt Ribs; which Branches, with the other Ten of the Back, are all call'd Intercoſtals. The Two firſt of the Loyns, are beſtow'd upon the Loyns; and the Three laſt upon the Fore-parts of the Thighs, to which they run together with the Blood-Veſſels. The Three firſt of the *Sacrum*, are very large, they joyn and form the Poſterior Crural Nerves, and the remaining Nerves of the *Sacrum*, are beſtow'd upon the Buttocks.

Nervi Dorſales.

Nervi Lumbales.

Every one of the Intercoſtal and Lumbal Nerves, ſend off ſmall Branches to the Back; and thoſe of the *Sacrum* ſend off Branches; but they ſeparate within the Spine, and go out backward at diſtinct Holes. Theſe laſt Nerves of the *Sacrum*, have no Ganglions after they leave the Spine.

The

Nervus Subclavius.

The Subclavian Nerves when they are got into the Axilla's with the great Blood-Veſſels, they there divide into Three large Branches; One of which paſſes along with the Blood-Veſſels towards the Thumb, and is call'd *Nervus Cubitalis ſuperior.* Another, which is the largeſt, paſſing down behind the inner *Apophyſis* of the *Os Humeri* to the Hand, is call'd *Cubitalis inferior.* And the third Branch, which is leſs than either of theſe, paſſes behind the *Os Humeri*, and is beſtow'd upon the Cubit and Back of the Hand.

Cubitalis ſuperior.

Cubitalis inferior.

Digitales.

The *Cubitalis ſuperior*, ends in the Thumb and the firſt Finger; and the *Cubitalis inferior* in the reſt.

There is another Branch detach'd from the Axillary Nerve, thro' the *Coracobrachialis* Muſcle, and is call'd *Perforans*; beſides theſe Branches, they every One as they paſs give off Branches to the Circumambient Parts.

Perforans.

Cruralis Poſticus.

The Poſterior Crural Nerve deſcends between the Flexors of the *Tibia*, and undet the Extenſors of the *Tarſus* to the bottom of the Foot and Toes; a little below the Knee, it ſends a Branch over the *Fibula* to the fore-part of the Leg, and as it paſſes along ſends off Branches to all the other Parts of the Lower Limb. We muſt referr the Reader to the Scheme of Nerves, which will beſt ſhow the Communications, how the Nerves are diſtributed to the Parts, and the manner of their dividing, which will be the beſt Help to account for the Conſent of Parts in the Body.

CHAP. XIV.

Of the Courſe of the ALIMENT *and* FLUIDS.

THE ALIMENT being receiv'd into the Mouth, it is there maſticated by the Teeth, and impregnated with *Saliva*, which is preſs'd out of the Salivary Glands by the Motion of the Jaw and the Muſcles that move it and the Tongue.

Then it deſcends thro' the *Pharynx* into the Stomach, where it is digeſted by the Juices of the Stomach, (which are what is thrown out of the Glands of its inmoſt Coat and *Saliva* out of the Mouth) and a moderate Warmth and Attrition.

Then it is thrown thro' the *Pylorus* or right Orifice into the *Duodenum*, where it is mix'd with Bile from the Gall-Bladder and Liver, and Pancreatic Juice from the Pancreatic Gland. Theſe Fluids ſerve farther to attenuate and dilute the digeſted Aliment, and probably, to make rhe fluid Part ſeparate better from the *Fæces.* After this it is continually mov'd by the Periſtaltic or Vermicular Motion of the Guts, and the Compreſſion of the Diaphragm and Abdominal Muſcles, by which Forces, the fluid parts are preſs'd into the Lacteals, and the groſs parts thro' the Guts to the *Anus.*

Chapter XIV.

The Chyle, or thin and Milky part of the Aliment, being receiv'd into the Lacteals from all the ſmall Guts, they carry it into the *Receptaculum Chyli*, and from thence the *Ductus Thoracicus* carries it into the left Subclavian Vein, where it mixes with th eBlood, and paſſes with it to the Heart.

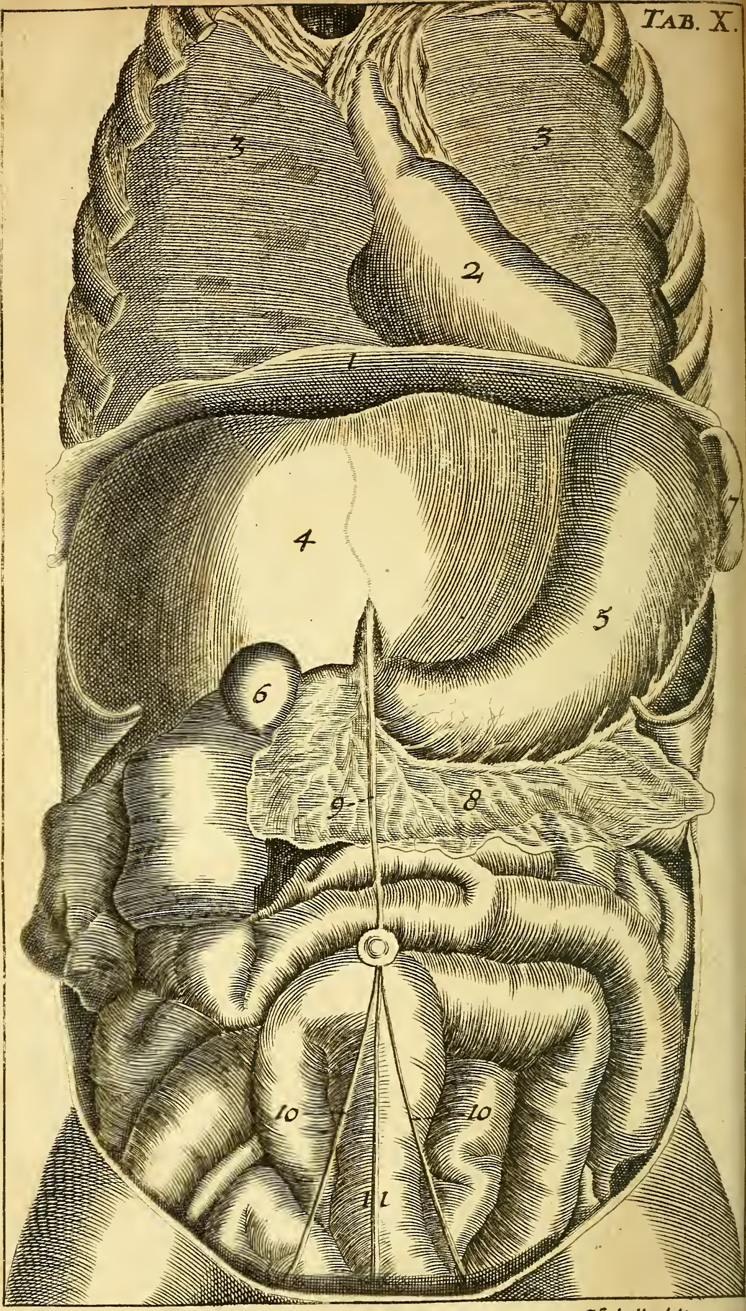
All the Veins being empty'd into Two Branches, *viz.* the aſcending and deſcending *Cava*, they empty into the right Auricle; the right Auricle, into the right Ventricle, which throws the Blood thro' the Pulmonary Artery into the Lungs, where it is mix'd with Air, and has thoſe *Globuli* ſeparated that coher'd in its unactive Courſe thro' the Veins.

From the Lungs, the Blood is brought by the Pulmonary-Veins into the left Auricle, and from that into the lef Ventricle, by which it is thrown into the *Aorta*, and diſtributed thro' the Body.

From the Extremities of the Arteries, ariſe the Veins and Lymphatics, the Veins to collect the Blood and bring it back to the Heart, and the Lymphatics to return the Lymph, or thinner part of the Blood, from the Arteries, that the Blood might not run ſo thin in the Veins as to ſuffer the *Globuli* to cohere ſo much as to form Polypuſſes, which it always does in ſuch Perſons as have too much Lymph, or that have a very languid Circulation, whether from Age or any Diſeaſe. The Lymphatics alſo dilute Chyle in the *Via Lactea.*

All the Fluids that paſs into the Stomach and Guts being carry'd into the Blood-Veſſels, the greateſt part of 'em are ſeparated and carry'd off by proper Veſſels, *viz.* Urine by the Kidneys, Bile from the Liver, *&c.* And theſe Juices carry along with them whatever might be injurious to the Animal OEconomy.

TAB. X.



Sutton Nicholls delin: et sculp

TABLE X.

The Parts of the Two lower VENTERS, in their Natural Situation.

1 THE *Diaphragm* dividing the *Thorax* from the *Abdomen*.

2 The *Pericardium* incloſing the Heart, and in this Subject adhering to it.

3 The *Lungs*.

4 The *Liver*.

5 The *Stomach* Inflated.

6 The *Gall-Bladder*.

7 Part of the *Splene*, which was rais'd to bring it in ſight.

8 The *Omentum*, the greater part of it being cut off.

9 The round Ligament of the *Liver*.

10 The *Umbilical Arteries*.

11 The *Urachus*.

TABLE XI.

The HEART with the AURICLES, *&c.* fill'd with Wax.

1 *VENA Cava deſcendens.*

2 The *Right Auricle* of the *Heart.*

3 The *Right Ventricle* of the *Heart.*

4 The *Pulmonary Artery.*

5 The Left Branches of the *Arteria Pulmonalis* cut ſhort.

6 The Right Branch of the *Arteria Pulmonalis.*

7 The Branches of the *Arteria Pulmonalis* taken out of the Right Lobe of the *Lungs.*

8 The Branches of the *Vena Pulmonalis* taken out of the Left Lobe of the *Lungs.*

9 The great Trunk of the Left *Vena Pulmonalis* entering the Left Auricle.

10 Part of the Left Auricle.

11 The Left Ventricle.

12 *Aorta Aſcendens.*

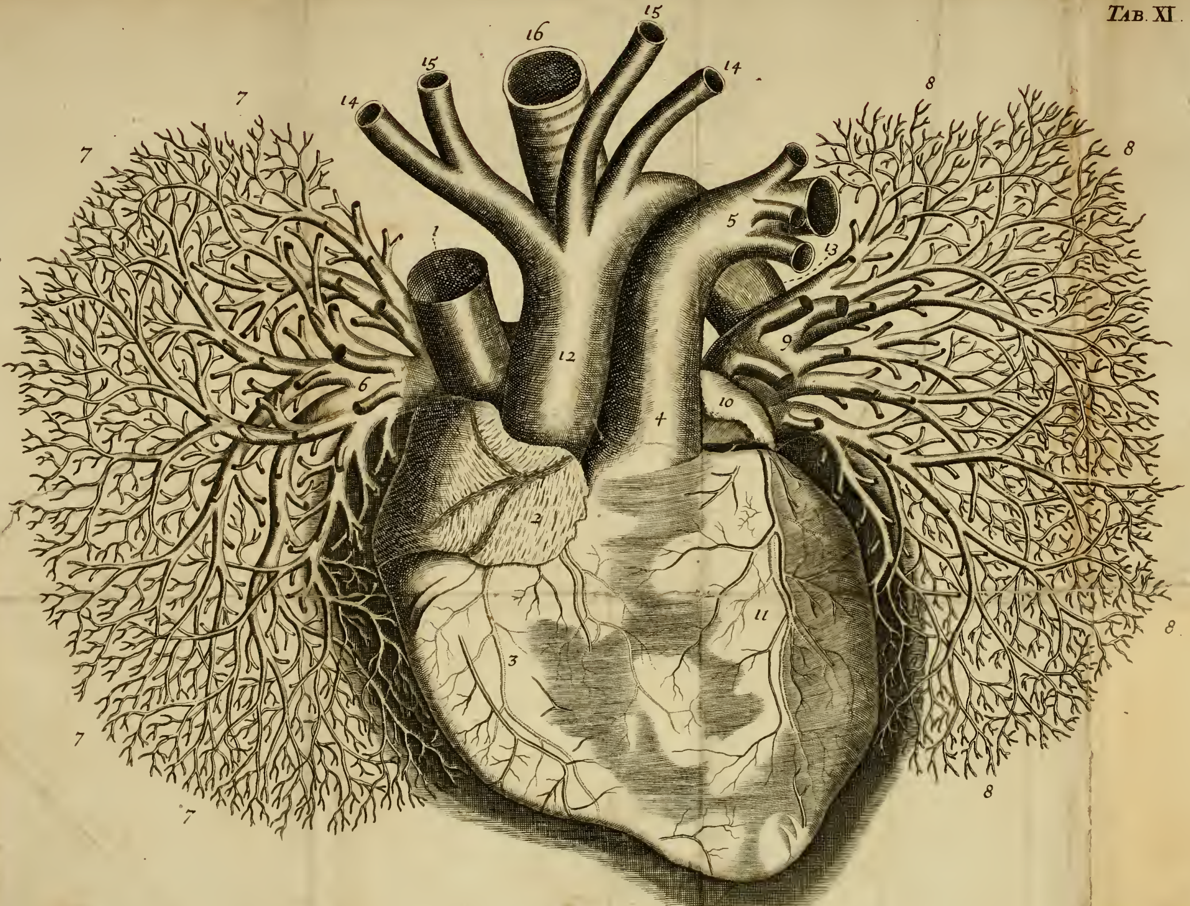
13 *Aorta Deſcendens.*

14 *Arteria Subclavia.*

15 *Arteria Carotis.*

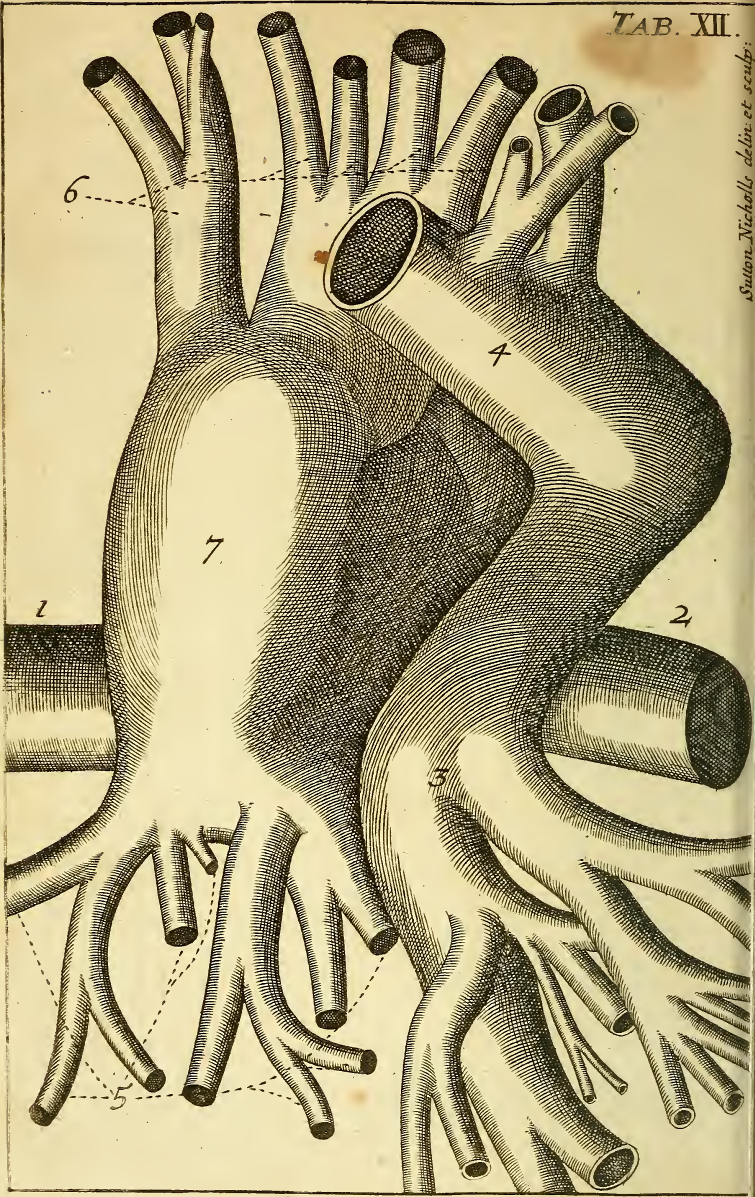
16 *Aſpera Arteria.*

TAB. XI.



Sutton Nicholls delin et sculp

TAB. XII.



Sutton Nicholls delin: et sculp:

TABLE XII.

The VESSELS at the Baſis of the HEART revers'd.

1 *CAVA Aſcendens.*

2 *Cava Deſcendens.*

3 The Right Trunk of the *Arteria Pulmonalis.*

4 The Left Trunk of the *Arteria Pulmonalis.*

5 Branches of the Right Pulmonary-Vein.

6 Branches of the Left Pulmonary-Vein.

7 The Muſcular-Bag, which is an *Appendix* to the Left Auricle.

TABLE XIII.

A, *VENÆ Lacteæ ſecundi generis.*

B, Lymphatics from the Liver.

C, *Receptaculum Chili.*

D, The Lumbal Lymphatics.

E, *Ductus Thoracicus.*

F, The Left Subclavian-Vein.

G, The Subclavian Lymphatics.

1 *Arteria. Aorta Aſcendens.*

2 —— *Coronaria Cordis.*

3 —— *Subclavia.*

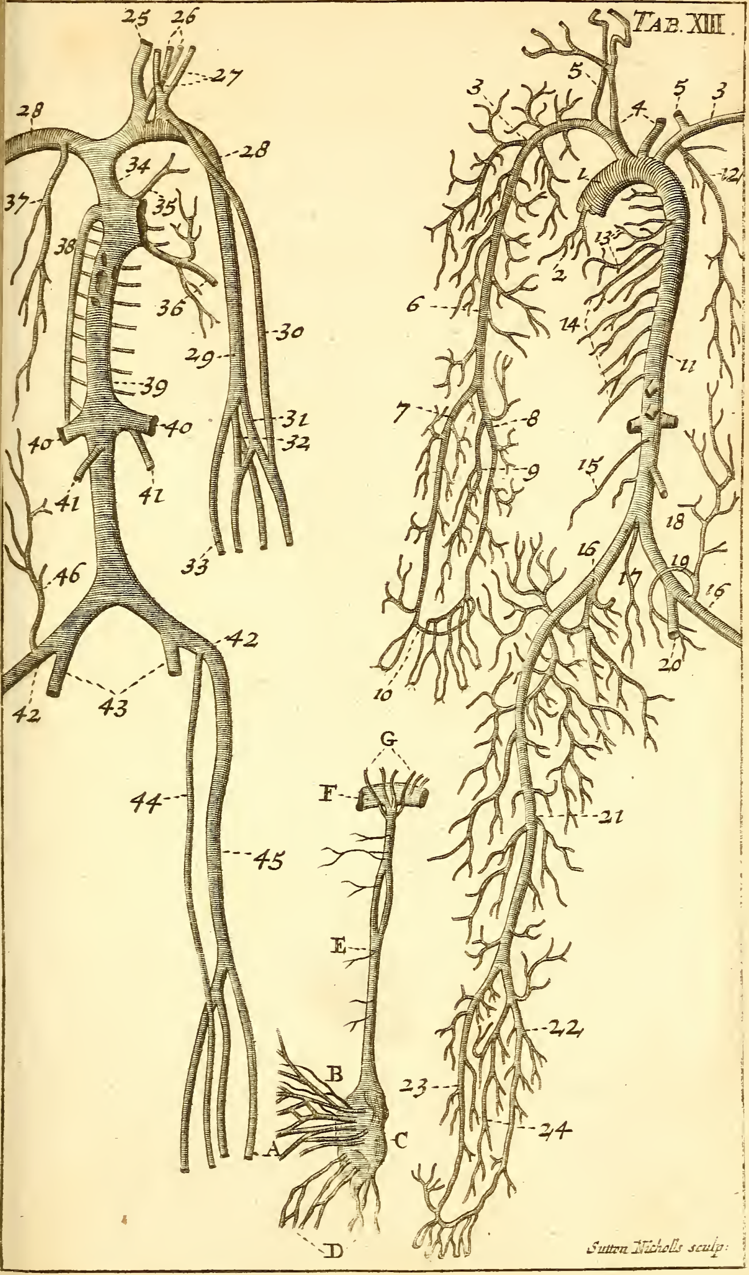
4 —— *Carotis.*

5 —— *Cervicalis.*

6 —— *Humeralis.*

7 —— *Cubitalis Superior.*

TAB. XIII.



Sutton Nicholls sculp:

8 *Arteria Cubitalis Inferior.*

9 —— *Cubitalis Media.*

10 —— A Communicating Branch.

11 —— *Aorta Deſcendens.*

12 —— *Mammaria.*

13 —— *Bronchialis.*

14 —— *Intercoſtales.*

15 —— *Spermatica.*

16 —— *Iliaca Externa.*

17 —— *Sacra.*

18 —— *Epigaſtrica.*

19 —— A Branch given off from the *Epigaſtrica* into the *Pelvis Abdominis*, and thro' the *Foramen* in the *Os Innominatum.*

20 —— *Iliaca Interna.*

21 —— *Cruralis.*

22 —— *Tibialis Poſtica.*

23 —— *Tibialis Antica.*

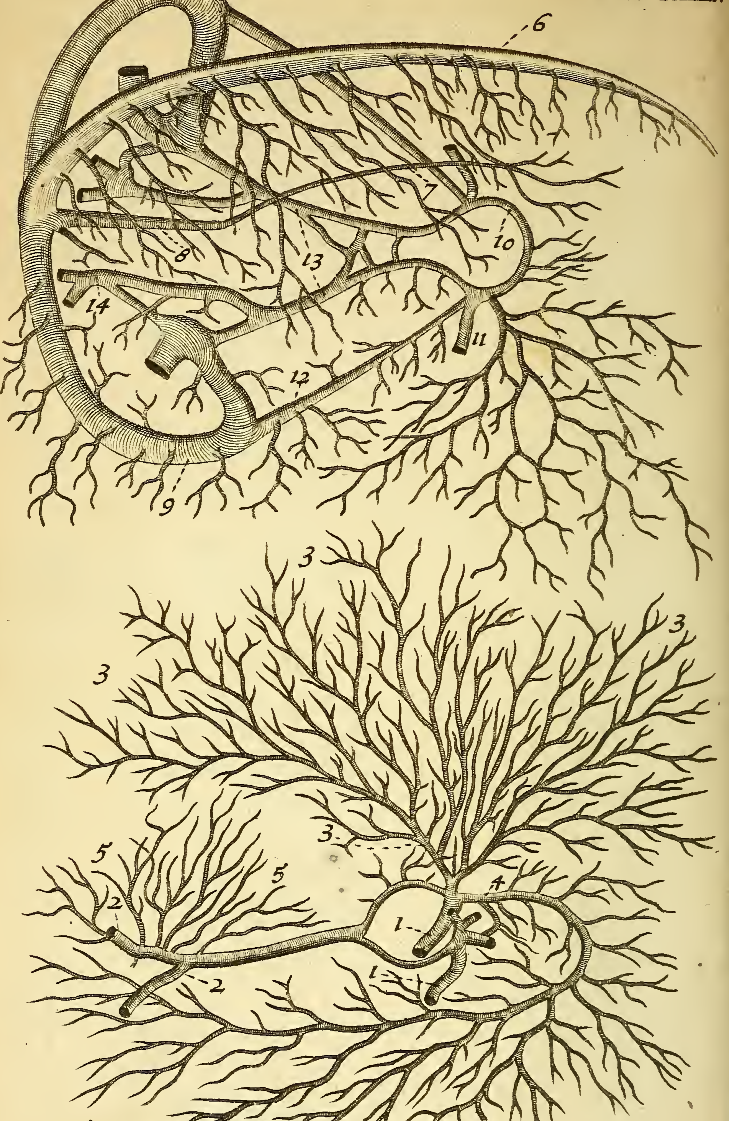
24 —— *Tibialis Media.*

BOOK III.

25 The Internal Jugular.
26 The Two Cervical.
27 The External Jugulars.
28 *Vena Subclavia.*
29 —— *Humeralis.*
30 —— *Cephalica.*
31 —— *Mediana.*
32 —— *Baſilica.*
33 —— *Salvatella.*
34 —— *Cava Deſcendens.*
35 —— *Bronchialis.*
36 —— *Coronaria.*
37 —— *Mammaria.*
38 —— *Azygos.*
39 —— *Cava Aſcendens.*
40 —— *Emulgens.*
41 —— *Spermatica.*
42 —— *Iliaca Externa.*
43 —— *Iliaca Interna.*
44 —— *Saphana.*
45 —— *Cruralis.*
46 —— *Epigaſtrica.*

TABLE

TAB. XIIII.



Sutton Nicholls sculp:

TABLE XIV.

The VESSELS *of the* BRAIN *fill'd with Wax.*

1 THE Carotid Artery.

2 The Cervical Artery.

3 The Branches of the Carotid Artery which paſs between the Lobes of the Brain on the Left Side.

4 The Branches from the Carotid Artery which paſs between the Hemiſpheres of the Brain.

5 The Branches from the Cervical Artery, which are beſtow'd upon the *Cerebellum.*

6 The Superior Longitudinal Sinus.

7 The Inferior Longitudinal Sinus.

8 The Streight Sinus.

9 The Lateral Sinus.

10 The Circular Sinus.

11 A Vein from the Circular Sinus.

12 A Sinus at the upper Edge of the *Os Petroſum.*

13 A Sinus at the lower Edge of the *Os Petroſum.*

14 The Cervical Sinus.

TABLE XV.

ARTERIES *fill'd with Wax.*

1 PART of the deſcending *Aorta.*

2 *Arteria Celiaca.*

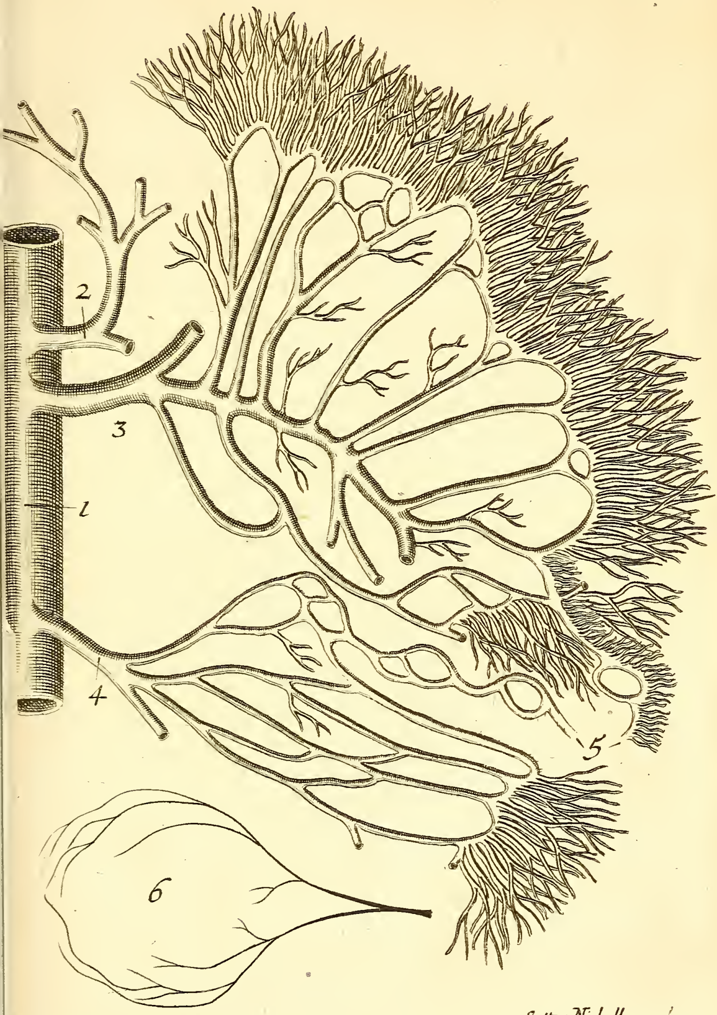
3 *Meſenterica Superior.*

4 *Meſenterica Inferior.*

5 Part of the Communicant Artery.

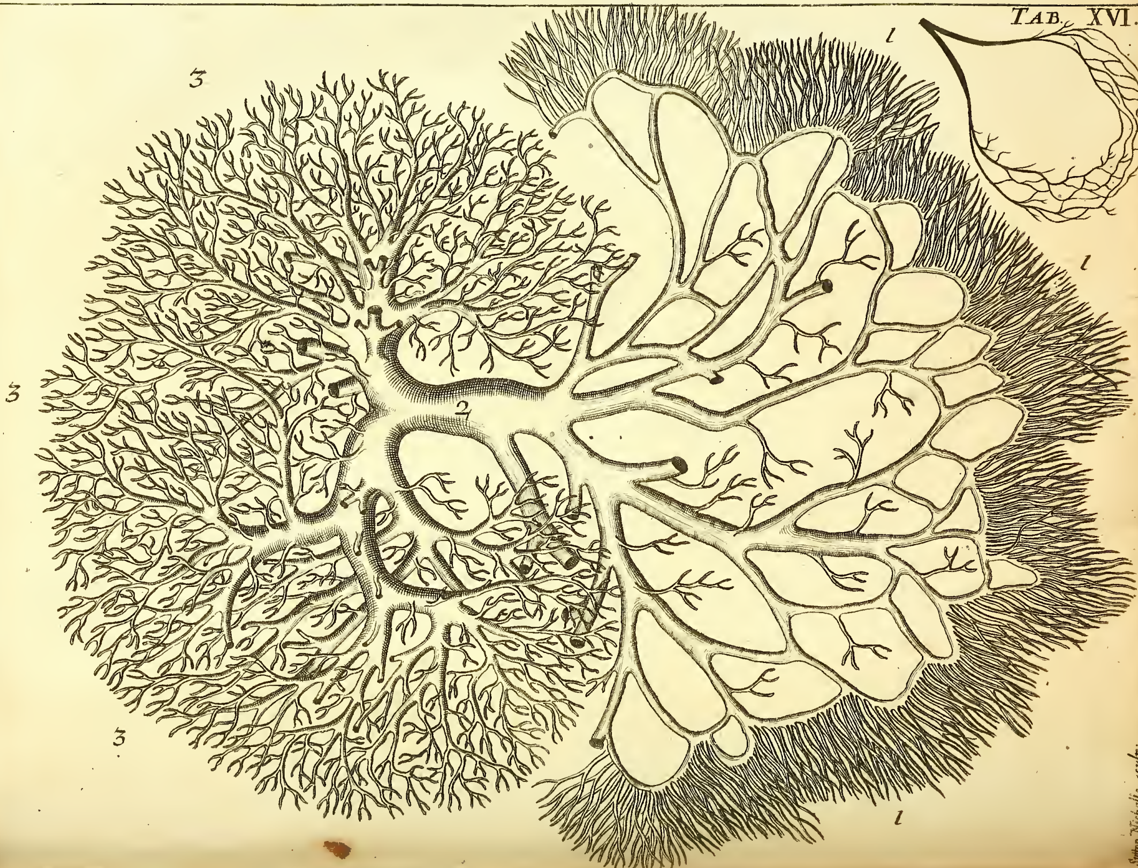
6 Shews One of the extreme Meſenteric Arteries, as it is diſtributed round the Inteſtine.

TAB. XV.



Sutton Nicholls sculp:

TAB. XVI.



Sutton Nicholls sculp:

TABLE XVI.

The VENA PORTÆ *fill'd with Wax.*

1 THE extreme Branches of the *Vena Portæ* in the Meſentery.

2 The ſingle Trunk of the *Vena Portæ* entering the Liver.

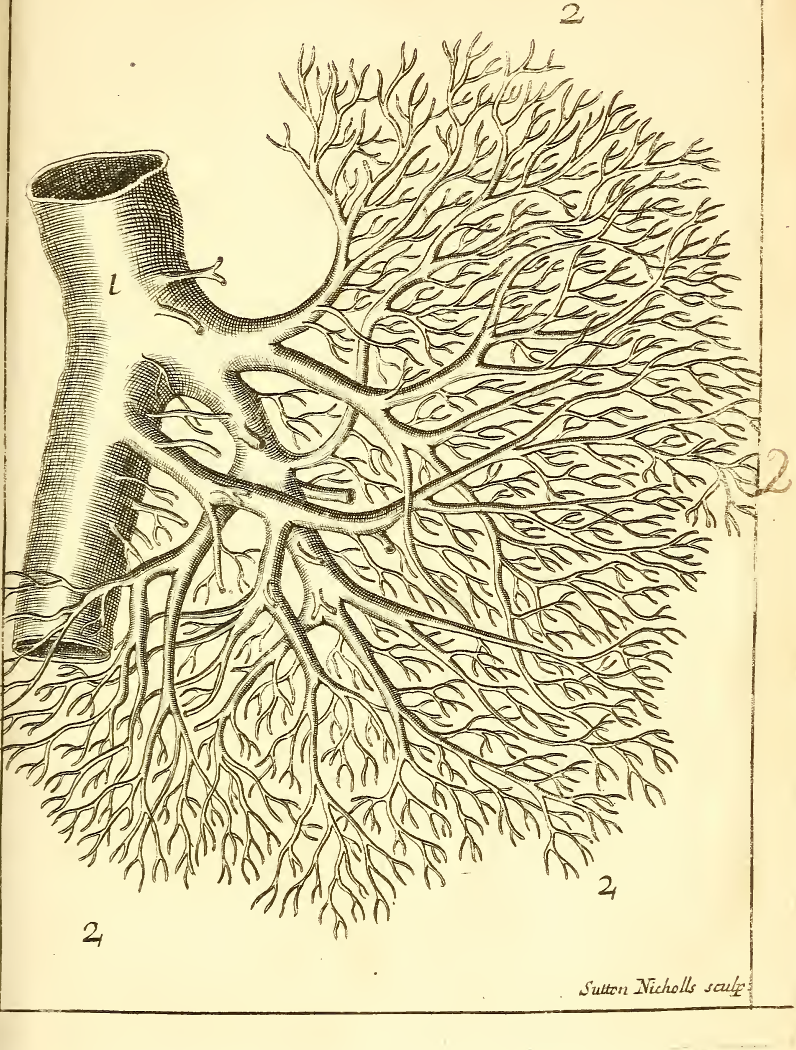
3 The extreme Branches of the *Vena Portæ* in the Liver.

TABLE XVII.

The VEINS *of the* LIVER.

1 PART of the *Vena Cava Aſcendens.*

2 The Branches of the *Cava* taken out of the Liver.



Sutton Nicholls sculp.

TAB. XVIII.

Sutton Nicholls sculp:

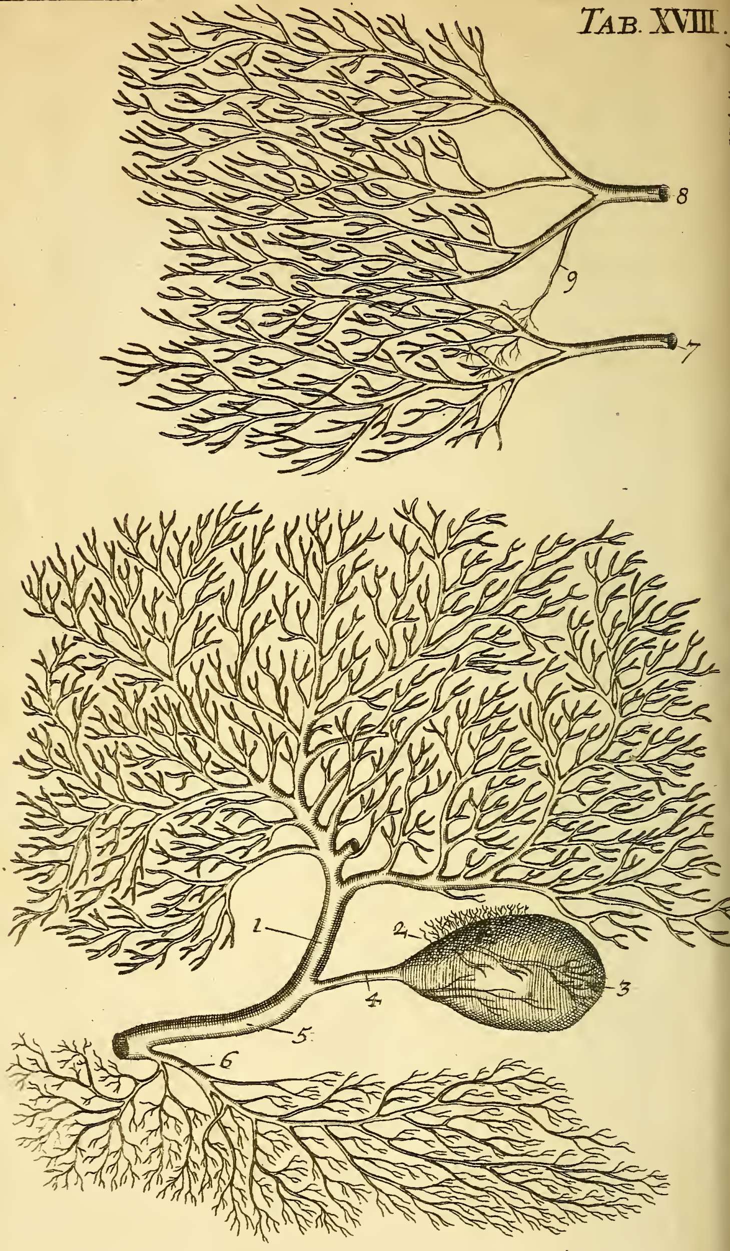


TABLE XVIII.

The EXCRETORY DUCTS *and* ARTERIES *of the* LIVER.

1 *DUCTUS Hepaticus*, with its Branches taken out of the Liver.

2 *Ductus Cyſtihepatici*, as they appear'd in a Man that dy'd of the Yellow-Jaundice.

3 The Gall-Bladder.

4 *Ductus Cyſticus.*

5 *Ductus Communis Choledochus.*

6 *Ductus Pancreaticus.*

7 The Hepatic Artery, which is given off from the Superior Meſenteric.

8 The Hepatic Artery, which is given off from the Celiac.

9 *Arteria Cyſtica.*

TABLE XIX.

Of the Nerves *and the* Medulla Spinalis.

1 *Par Nervorum Primum ſeu Olfactorium.*

2 ———— *Secundum ſeu Opticum.*

3 ———— *Tertium ſeu Oculorum Motorii.*

4 ———— *Quartum ſeu Patheticum.*

5 ———— *Quintum ſeu Guſtatorium.*

6 ———— *Sextum.*

7 ———— *Septimum ſeu Auditorum.*

8 ———— *Octavum ſeu Vagum.*

9 ———— *Nonum.*

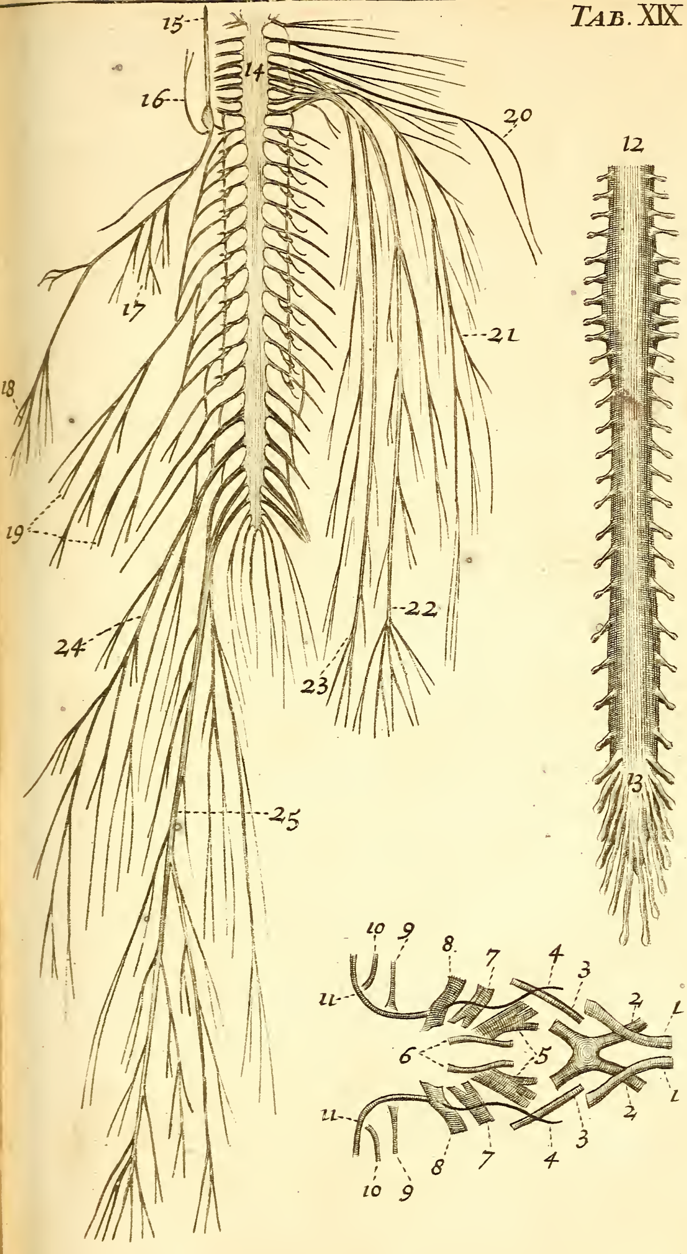
10 ———— *Decimum.*

11 *Nervus Acceſſorius.*

12 The Spinal Marrow of a *Fœtus* diveſted of its *Dura Mater*, or outer Coat, and the Nerves as they ariſe from the Spinal Marrow delineated as far as the Ganglions which unite thoſe that ariſe from the fore-part of the Spinal Marrow with thoſe of the back-part.

13 The

TAB. XIX.



Sutton Nicholls sculp:

Table XIX.

13 The Nerves at the lower end of the Spinal Marrow, call'd *Cauda Equina.*

14 The Spinal Marrow within its *Dura Mater.*

15 One of the *Par Vagum Nervorum.*

16 *Nervus Recurrens.*

17 *Nervi Bronchiales.*

18 *Nervi Ventriculi.*

19 *Nervi Meſenterici.*

20 *Nervus Phrenicus.*

21 *Nervus Cubitalis Medius.*

22 *Nervus Cubitalis Superior.*

23 *Nervus Cubitalis Inferior.*

24 *Nervus Cruralis Anticus.*

25 *Nervus Cruralis Poſticus.*

BOOK IV.

CHAP. I.

Of the Urinary and Genital Parts of Men.

Chapter I.

THE Urinary Parts are the Kidneys with their Veſſels and Bladder of Urine.

The KIDNEYS, of Men, are like thoſe of Sheep and Dogs, the Two weigh about Twelve Ounces; they are ſeated towards the upper part of the Loyns upon the Two laſt Ribs, the right under the Liver, and a little lower than the other, and the left under the Splene. Their Uſe is to ſeparate the Urine from the Blood, which is brought thither for that Purpoſe by the Emulgent Artery; and what remains from the Secretion, is return'd by the Emulgent Veins, while the Urine ſecreted is carry'd off thro' the Ureters to the Bladder. Art. Emulg. Venæ Emul.

The URETERS, are Tubes about the bigneſs of a Gooſe-quill; they enter the Bladder near its Neck, running obliquely for the ſpace of an Inch between its Coats; Ureters.

which manner of entering, is to them as Valves. The beginning of the Ureters in the Kidneys, are the *Tubuli Urinarii*, which joyning form the *Pelvis* of the Kidneys or Ureters. Between the *Tubuli Urinarii*, Authors have remark'd ſmall *Papillæ*; and the Parts which diſtinguiſh themſelves by a clearer Colour, they call *Glandulæ*; but for what Reaſon theſe are ſo particularly remark'd we know not; ſeeing the Kidneys are univerſally acknowledg'd to be Glands of the Conglomerate Kind.

Tub. Urin.
Pelvis.
Papillæ.
Glandulæ.

The BLADDER of URINE, is ſeated in the *Pelvis* of the *Abdomen*; its ſhape is Orbicular, and its Coats are the ſame as the Guts, and other hollow Muſcles already deſcrib'd. (*Vid. Muſculus Detruſor Urinæ* and *Sphincter Veſicæ Urinariæ.*)

GLANDULÆ RENALES, are Two Glands ſeated immediately above the Kidneys, of no certain figure; nor do we know their Uſe; but always paint and deſcribe them with the Urinary Parts becauſe of their Situation. They receive a great many ſmall Arteries, and return each of 'em One or Two Veins. In their inſide is a ſmall Sinus tinctur'd with a ſootty colour'd Liquor.

The Genital Parts of Men are the *Teſtes* and *Penis*, with their Veſſels, *&c.*

Teſtes.

The Office of the TESTES, is to ſeparate the Seed from the Blood; they are ſeated in the *Scrotum*, and have Four Coats, Two

Tunica Dartos.
Proc. Vaginalis.
Tun. Albuginea.

Two common, and Two proper; the common are the outer Skin and a looſe Membrane immediately underneath, call'd *Dartos.* The firſt of the proper, is the *Proceſſus Vaginalis*; it is continu'd from the *Peritoneum* to the Teſticle, which it incloſes with all its Veſſels into this Membrane, the *Ilion* deſcends in the *Hernia Inteſtinalis*, and the Water in the *Hernea Aquoſa.* (*Vid. Muſculi Abdominis)* the other proper Coat, is the *Albuginea*, which is very ſtrong, immediately incloſing the Teſticle.

The TESTICLES, receive each, One Artery from the *Aorta*, a little below the Emulgents, which unlike all other Arteries, ariſe ſmall, and dilate in their progreſs, that the velocity of the Blood may be ſufficiently abated for the Secretion of ſo viſcid a Fluid as the Seed. The right Teſticle returns its Vein into the *Cava*, and the left into the Emulgent on the ſame ſide; both becauſe it is the readieſt Courſe, and becauſe the Vein croſſing the *Aorta*, wou'd have been ſubject to Obſtructions from the Pulſe of that Veſſel.

Epididymi.

On the upper part of the Teſticles, are hard Bodies, call'd *Epididymi*; they are the beginnings of the *Vaſa Deferentia.*

Vaſa Defer.

VASA DEFERENTIA, are Excretory Ducts to carry the elaborated Seed to the *Veſiculæ Seminales.*

Veſic. Semi.

VESICULÆ SEMINALES, are Two Bodies of ſmall Veſicles, ſeated near the

Neck of the Bladder of Urine, in which the Seed is repoſited, it paſſes into the *Urethra* thro' many ſmall Ducts which lead from theſe Veſicles thro' the proſtate Glands. The Mouths of theſe Ducts in the *Urethra*, where they appear a little eminent, are call'd *Caput Gallinaginis*. Cap. Gallin.

Proſtatæ. PROSTATÆ, are Two Glands, or rather One, about the ſize of a Nutmeg; they are ſeated between the *Veſiculæ Seminales* and *Penis* under the *Oſſa Pubis*, almoſt within the *Pelvis* of the *Abdomen*. They ſeparate a lympid glutinous Humour which mixes with the Seed as it paſſes thro' theſe Glands in the time of Coition.

PENIS, Its Shape, Situation, and Uſe, are too well known to need a Deſcription. It begins with Two Bodies, nam'd *Crura*, from the *Oſſa Iſchia*, which unite under the *Oſſa Pubis*, and are there ſtrongly connected. In its under part is a Channel from the Bladder, call'd *Urethra*, thro' which both Urine and Seed paſs; its fore-part is call'd *Glans*, the looſe Skin which covers it, *Præputium*, and the ſtrait part of that Skin on the under ſide, *Frænum*. Crura. Urethra. Glans. Præputium. Frœnam.

The URETHRA, is lin'd with a Membrane ſtudded with ſmall Glands that ſeparate a *Mucus* that defends it from the acrimony of the Urine. Theſe Glands are largeſt neareſt the Bladder. Mr. *Cowper* deſcribes Three large Glands of the *Urethra*, which he diſcover'd in a Pockey Body, Two of 'em are ſeated near the Bladder, and One near the *Glans*: For a particular Deſcription of theſe, we referr you to the Author, becauſe we have never been able to find 'em in any Body. Indeed, if it was not Mr. *Cowper*'s Diſcovery, we ſhou'd ſuſpect 'em, either ſome of the ſmall Glands in a diſeas'd ſtate, or a *Luſus Naturæ*, which is very common among Glands.

Corpora Cavernoſa.

The inner Texture of the *Penis* is ſpongy, like the inner Texture of the Splene, or Ends of the great Bones; it is commonly diſtinguiſh'd into *Corpus Cavernoſum Penis*, *Glandis* and *Urethra*; theſe Three Parts are all diſtinct, and the Two former divided lengthway with a thin *Septum*. It has Two Arteries from the Internal Iliacs, and One large Vein, call'd *Vena Ipſius Penis*, which conveys the refluent Blood into the Internal Iliac-Veins. Theſe Arteries and the Vein run together upon the upper part of the *Penis*, and under the *Oſſa Pubis*, the Vein more ſuperficially; and about the middle of the *Penis* there are ſmall Collateral Veins which communicate with the *Vena Ipſius Penis*, and occaſionally carry off ſome of its Blood, that the erection of the *Penis* might not be of ill Conſequence. (*Vid.* Chap. *Of the Muſcles of the Penis.*)

In a Boy that dy'd of the Stone, we found a double *Ureter*, each part being dilated to an Inch Diameter; the *Pelvis* in each Kidney

twice

twice its natural bigneſs, and the *Tubuli Urinarii*, each as large as the *Pelvis*.

In a Man that had never been cut for the Stone, we found the Ureters dilated in ſome places to Four Inches Circumference, and a Stone in the Bladder leſs than a Nutmeg, which muſt have fallen in ſeveral pieces, or both Ureters cou'd not have been dilated. From this, and other the like Obſervations, we ſuppoſe, that it is not the Stone that dilates the Ureters to this prodigious ſize, but the ſticking of the Stone in the oblique paſſage into the Bladder, 'till the weight of the incumbent Urine which dilates theſe Parts, is ſufficient to protrude it.

We have once met with a Kidney intirely conſum'd. And once Lymphatics in a diſeas'd Teſticle, as large as a Crow-quill.

CHAP. XI.

Of the Genital Parts of Women.

Mons Veneris.

THE External Parts, are the *Mons Veneris*, which is that riſing of Fat cover'd with Hair above the *Rima Magna* upon the *Os Pubis*, the great doubling of the Skin on each ſide the *Rima* call'd *Labia* and within theſe a leſſer doubling like Cock's Watles nam'd *Nymphæ*.

Labia.

Nymphæ.

CLITORIS, is a ſmall Spongy Body reſembling the *Penis* in Men, but has no *Urethra.* It begins with Two *Crura* from the *Oſſa Iſchia*, which uniting under the *Oſſa Pubis*, proceeds to the upper part of the *Nymphæ*, where it ends under a ſmall doubling of Skin, call'd *Præputium*; the End is call'd *Glans.* This is ſaid to be the Seat of Pleaſure in Women, as the *Glans* is ſaid to be in Men. (*Vid. Muſc. Erectores Clitoridis.*)

Crura.

Præputium.

Glans.

A little lower than this, juſt within the *Vagina*, is the exit of the *Meatus Urinarius.*

VAGINA, is ſeated between the Bladder of Urine and *Inteſtinum Rectum.* The Texture of it is Membranous, and its Orifice is contracted with a *Sphincter*; (*Vid. Muſc. Sphincter Vaginæ*) but the further part is capacious enough to contain the *Penis* without dilating. Near the beginning of the *Vagina*, immediately behind the *Meatus Urinarius*, is ſometimes found a Membrane perforated in the middle, call'd *Hymen*; this when broke makes ſmall unequal Bodies, call'd *Carunculæ Myrtiformis*: Theſe are alſo found in ſuch Bodies as have no *Hymen.* This part of the *Vagina* is form'd into *Rugæ*, which are moſt conſiderable in thoſe who have not us'd Copulation; and leaſt in thoſe who have had many Children. Under theſe *Rugæ* are ſmall Glands, whoſe Excretory Ducts are call'd *Lacunæ*: Theſe Glands ſeparate a Mucilaginous Matter to lubricate the *Vagina*, eſpecially in Coition; and are the Seat of a

Hymen.

Carunculæ Myrtiformes.

Rugæ.

Glandulæ Lacunæ.

Gonorhea in this Sex, as the Glands in the *Urethra* are in the Male.

Os Tincæ.

Ligamenta.

UTERUS, is ſeated at the End of the *Vagina*; it is about One Inch thick, Two broad, and Three long, with a very ſmall Cavity, ſcarce large enough to contain the Kernel of a Hazel-nutt; but in Women that have had Children, much larger. Its Orifice into the *Vagina*, is call'd *Os Tincæ*, from the reſemblance it bears to a Tench's Mouth. It has two round Ligaments which go from the ſides of it to the Groins thro' the Oblique and Tranſverſe Muſcles of the *Abdomen*, in the ſame manner as does the Seminal Veſſels in Men. This way the *Ilion* paſſes in a *Hernia Inteſtinalis* in Women. (*Vid. Muſculi Abdominis.*) Some Authors mention *Ligamenta Lata*; which are nothing but a part of the *Peritoneum*.

OVARIA, are depreſs'd oval Bodies, ſeated One on each ſide of the *Uterus*; they contain ſmall pellucid Eggs; from which, they have their Name.

Fimbriæ.

TUBÆ FALOPPIANÆ, are ſeated at the ſide of the *Ovaria*; their Ends are jagged, and are call'd *Fimbriæ* or *Morſus Diaboli.* Among the *Fimbriæ* is a ſmall Orifice which leads to a Cavity of near a quarter of an Inch Diameter, and then growing gradually ſmaller, paſſes to the Uterus, and enters there with an Orifice not more than large enough to admit of a Hog's Briſtle.

VASA SPERMATICA, are Two Arteries and Two Veins, which paſs to and from the Ovaries or Teſtes, in the ſame manner that they do in Men; but make more windings, and the Arteries dilate more ſuddenly, becauſe they are ſhorter. Theſe Arteries and Veins both detach Branches to the *Uterus* and Faloppian Tubes, and not only communicate the Artery and Vein on one ſide with thoſe of the other, but alſo with the proper Veſſels of the *Uterus* detach'd from the internal Iliac Arteries and Veins.

We have ſeen a Girl with a *Clitoris* Three Inches long externally.

CHAP. III.

Of the FOETUS *in the* WOMB.

THE *Fœtus* in the Womb is involv'd in Two Coats, *viz. Chorion* which is external, and *Amnion* which immediately incloſes the *Fœtus*. They each contain a quantity of Liquor, which is a proper Medium for ſo tender a Being as the *Fœtus* to reſt in; and when the Membranes burſt at the time of Production, theſe Humours with that contain'd in the *Allantois*, lubricate the *Vagina Uteri*, and render the Birth leſs Difficult. Beſides theſe Uſes, we may reaſonably conjecture, That ſome of the Humour contain'd in the *Amnion*, is made uſe of for the Nouriſh-

Chorion.

Amnion.

BOOK IV. Nouriſhment of the *Fœtus*; becauſe we find a like Humour in the Stomach and Guts, with ſome Excrement, which we may ſuppoſe, was the groſs parts of the Fluid; for it ſeems highly neceſſary, that the Ducts thro' which the Body receives Nouriſhment after the Birth, ſhou'd be kept open by a Fluid paſſing that way whilſt it is in *Utero*, even as a ſmall portion of Blood is ſuffer'd to paſs thro' the Lungs for the ſame Purpoſe.

Placenta. The PLACENTA, or Womb-Liver, is a Maſs of Blood-Veſſels ſeated on the outſide of the *Chorion*, being compos'd of the extreme Branches of the Umbilical-Vein and Arteries, which are for the compoſition of this Part divided into exceeding ſmall Branches, that the ſeparation of 'em from the Menſtrual Veſſels of the Womb at the Birth, may not be attended with a flux of Blood, fatal to the Mother. Its figure is circular, and ſize as that of the *Fœtus*; being at its greateſt growth about Two Inches Thick, and Six or Seven Diameter.

Ven. Umbilicalis. From the *Placenta*, runs the Umbilical-Vein thro' the Navel, and thence directly into the Liver, and there enters the great Trunk of the *Vena Portæ*. Near the entrance of this Veſſel into the *Porta*, there goes out the *Ductus Venoſus* to the great Trunk of the *Cava*, and carries about a third part of the Blood which is brought by the Umbilical-Vein that way, into the *Cava*, while the reſt circulates with the Blood of the *Porta*. After

Duct. Venoſus.

the Birth, the Umbilical-Vein becomes a Ligament and the *Ductus Venoſus*, becomes uſeleſs, contracts, and diſappears.

The over-plus of Blood brought from the Mother to the *Fœtus* by the Umbilical-Vein, is return'd to the Mother by Two Veſſels ariſing from the Internal Iliac Arteries, call'd Umbilical Arteries. Theſe Veſſels paſs by the outſides of the Bladder directly to the Navel and *Placenta* and together with theſe, there runs a ſmall Duct, call'd *Urachus*, from the Top of the Bladder thro' the Navel into a Membranous Bag, ſeated oppoſite to the *Placenta* between the *Membrana Chorion* and *Amnion*, nam'd *Allantois*, or rather *Membrana Urinaria*.

Art. Umbilicales.

Urachus.

Allantois.

Theſe Umbilical Veſſels from the Navel to the *Placenta*, are about Two Foot long, which was neceſſary, that the *Fœtus* might have room to move without tearing them or the *Placenta* from the *Uterus*. They are all wrap'd up in one common *Involucrum*, and are call'd by Midwives, the *Navel-String*.

The Umbilical Arteries and *Urachus* ceaſing to be of uſe after the Birth, loſe the greateſt part of their appearance, being ſeldom to be trac'd farther than Two Inches above the Bladder, and often not ſo far.

The Blood which is brought to the Heart by the Aſcending *Cava*, paſſes out of the right Auricle into the left thro' a Paſſage call'd *Foramen Ovale*, in that ſide of the Auricle which is common to 'em both, without paſſing thro'

Foramen Ovale.

Ductus 'Arterioſus.

thro' the right Ventricle, as after the Birth, while the Blood from the Deſcending *Cava* paſſes thro' the right Auricle and Ventricle into the Pulmonary Artery, and thence into the *Aorta* thro' a Duct betwixt that and the Pulmonary Artery, call'd *Ductus Arterioſus*, while a ſmall portion of the Blood thrown into the Pulmonary Artery, paſſes thro' the Lungs to keep open the Pulmonary Veſſels. Thus both Ventricles are employ'd in driving the Blood thro' the *Aorta* to all Parts of the *Fœtus* and to the Mother: But after the Birth, the Blood being only drove from the *Aorta* thro' the *Fœtus*, one Ventricle becomes ſufficient; while the other is imploy'd in driving the Blood thro' the Lungs, the *Ductus Arterioſus* being obſtructed from the alteration of its Poſition, which happens to it from the raiſing of the *Aorta* by the Lungs, when they become inflated. The Blood being thus drove into the Lungs, in its return it ſhuts the Valve of the *Foramen Ovale* again the *Foramen*, to whoſe ſides it ſoon adheres, and ſtops up this Paſſage. The *Ductus Arterioſus* or *Ductus Arterioſus* in *Ligamentum verſus*, is ſeldom to be obſerv'd in adult Bodies, but the figure of the *Foramen Ovale* is never obliterated.

Among the Obſervations which I made, when I firſt apply'd myſelf to the Diſſection of Human Bodies, there are frequent Accounts of the *Foramen Ovale* open in Adults; but I find ſince that I miſtook the *Oſtum Venarum*

narum Coronariarum, for this *Foramen*. The like I ſuppoſe, Authors have done, who aſſert, That it is always open in Amphibious Animals: For we have made diligent inquiry into thoſe Animals, but never found it ſo; nor cou'd that, as they imagine, fit theſe Creatures to live in Water, as the *Fœtus* does in *Utero*, unleſs the *Ductus Arterioſus* was open alſo. But the reaſon why Amphibious Animals can live longer without breathing, than other Animals that have Lungs, is the largeneſs of their Veins, which receive the greateſt part of the Blood when they do not breath, and prevent the Lungs being overcharg'd; for all theſe Animals can refrain longeſt from breathing, when their Blood is leaſt expanded with Heat, or their Veins moſt dilated.

All the Parts of a *Fœtus* are ſofter than in Adults; the Head and the Cavity of the *Abdomen* are remarkably large, and all the Parts contain'd in both, are proportionably bigger than afterwards, eſpecially the *Glandulæ Renales*. The Organs of Hearing and Sight, are wonderfully perfect; and the Gland *Thymus* at the time of the Birth, is at the biggeſt ſtate, and all the Glands, particullarly thoſe which accompany the Lymphatics, bear a much greater proportion to the other Parts, than they do in Bodies full-grown.

CHAP. IV.

Of the EYE.

THE Figure, Situation, and Uſe of the Eyes, together with the Eye-brows, Eye-laſhes and Eye-lids, being well known, we will only deſcribe their Coats and Humours, *&c.*

TUNICA CONJUNCTIVA, is a very thin Membrane extended over ſo much of the Eye as appears White, and thence being reflected lines the inſide of each Eye-lid. It renders the Parts it covers ſmooth, and hinders extranious Bodies from getting behind the Globe of the Eye.

Caruncula Lacrymalis.

At the inner Corner or great Canthus of the Eye, ſtands the *Caruncula Lacrymalis*, thro' which any ſuperfluous Humidity or extranious Body may fall from under the Eye-lids into the *Ductus ad Naſum* of the *Os Unguis*, and thro' that to the Noſe.

Membrana.

Behind the *Tunica Conjunctiva*, is a very looſe *Membrana Adipoſa*, which fills up ſo much of the Orbit, as the Eye, its Muſcles and Glands does not poſſeſs; this Fat is a convenient *Medium* for the Eye to reſt and move in.

TUNICA SCELEROTIS and CORNEA, is one compact, denſe, ſtrong Membrane, containing the inner Coats and Humours of the

Eye. The fore-part being tranſparent, and not unlike Horn, is call'd *Cornea*; and the hind-part denſe, and opake, is call'd *Sclerotis*.

TUNICA CHOROIDES and UVEA, is a ſoft Membrane immediately under the *Sclerotis*, part of which being the Colour of the *Membrana Chorion* in the Womb, is call'd *Choroides*, and part being the Colour of an unripe Grape in Brutes, is nam'd *Uvea*; but in Men the fore-part of the *Choroides*, is call'd *Uvea*.

TUNICA RETINA, is the Optic Nerve, delicately expanded upon the laſt deſcrib'd Coat, and round the Vitreous and Aqueous Humours. Upon this Objects are painted by the Rays of Light which paſs thro' the *Tunica Cornea* and the Humours.

It is obſervable, That the Optic Nerve does not enter the Eye exactly oppoſite to the Pupill, but nearer the Noſe, that the Rays of Light from the middle Point of an Object at a ſtated diſtance, might not fall upon both Nerves at their entrance, and ſo be loſt.

IRIS, is an opake Body, like the *Tunica Choroides*; but of different Colours in different Perſons, ſuch as the Eye appears, as Grey, Black or Hazel; for it being ſeated under the *Tunica Cornea*, it gives ſuch an appearance to that as it has itſelf: The middle of it is perforated for the admiſſion of the Rays of Light, and is call'd *Pupilla*, which is leſſen'd

Pupilla.

leſſen'd by the Contraction of the *Iris*, when too many Rays of Light fall upon it at once.

PROCESSUS CILIARES, are ſmall Black Bodies like Lines drawn from a leſſer Circle to a greater; they are ſeated under, and contiguous to the *Iris*, which they are ſaid to dilate, and thereby inlarge the Pupill.

Chryſtallinus. The HUMOURS, are the Chryſtalline which is ſomewhat harder than a Jelly, of a Spheroidal figure, ſeated upon the Vitreous Humour under the *Tunica Cornea*; the Vitreous. Vitreous, of the Conſiſtence of a Jelly, ſeated under all the *Tunica Sclerotis*; and Aqueous. the Aqueous which ſurrounds them both, is as Lympid as Water.

Some Authors have reckon'd a Coat to the Chryſtalline Humour, which they call *Aranea* from the delicateneſs of its Texture. But this Appearance reſults merely from the boyling or expoſing the Humour to the Air; which is their Way of diſcovering it.

CHAP.

CHAP. V.

Of the EAR, *&c.*

THE Figure and Situation of the outer EAR is ſo well known, that it needs no Deſcription. Modern Writers have diſtingiuſh'd its ſeveral Parts, (to whom we referr thoſe who think 'em worth knowing) into *Helix*, *Antehelix*, *Tragus*, *Antitragus*, *Pinna*, *Concha*, *Lobus* and *Alvearium*. Its Uſe is to receive and collect the Sound convey'd by the Vibrations of the Air, and to moderate its impulſe.

MEATUS AUDITORIUS, is a Paſſage from the middle of the outer Ear to the *Tympanum*; it is lin'd with a Membrane beſet with ſmall Glands which ſeparate the Ear-wax.

ITER *ad* PALATUM or *ad* AUREM, is a ſlender Duct beginning from behind the Tonſil, and paſſing thro' a Hole in the *Os Petroſum* ends in the *Tympanum*. Thro' this Paſſage the Air in the *Tympanum* moves backwards and forwards, as the *Membrana Tympani* becomes more or leſs convex inwards for the reception of greater or leſs Sounds.

Some Perſons whoſe *Meatus Auditorius* is obſtructed, will hear this way, when they open their Mouths wide. And ſome have loſt their Hearing from Obſtructions in the Orifice of this Duct, which has been often occaſion'd by a ſwell'd Tonſil, or a large *Polypus* in the back-part of the Noſe; and as ſoon as theſe have been remov'd, the Patient has recover'd the Uſe of the Ear.

TYMPANUM, is a Cavity in the *Os Petroſum* beyond the *Meatus Auditorius*; it contains the Auditory Bones.

MEMBRANA TYMPANI, is a Membrane extended upon an almoſt circular Bony Ridge between the *Meatus Auditorius* and *Tympanum*; its Situation is near Horizontal, looking down to the *Meatus Auditorius*; ſo much as this wants of a Circle is left open; which is more or leſs in different Perſons. In ſome it has been ſo open, that they have blown out a Candle at the outer Ear, the Air being forc'd from the Mouth thro' the *Iter ad Palatum* and *Meatus Auditorius*. And we have ſeen a Man ſmoke a whole Pipe of Tobacco out this way, and yet cou'd hear very well.

FENESTRA OVALIS and ROTUNDA, are Two ſmall *Foramina* at the far ſide of the *Tympanum*, which lead into a Cavity call'd *Viſtibulum*.

Cochlea.

Canales Semicir.

VESTIBULUM, is a ſmall Cavity in which begins a Cell, like a Snail-ſhell, call'd *Cochlea*, and Three Semicircular *Canals*. Theſe are all lin'd with a fine Membrane, as we have elſewhere obſerv'd every Boney Cell is.

Ossa, the Auditory Bones are ſeated in the *Tympanum:* The firſt is call'd *Malleolus*, it has a long Proceſs ſeated in the *Membrana Tympani*, and other Proceſſes for the inſertion of Muſcles. The ſecond is *Incus*, its thick End is articulated to the *Malleolus*, and One of its Proceſſes which is the longer of the Two is articulated to the Stapes by means of the *Oſſiculum quartum*. The *Stapes* exactly reſembles a Stirup, and is ſeated upon the *Feneſtra Ovalis*; the *Oſſiculum quartum*, is leſs than a Pin's Head.

Malleolus.

Incus.

Stapes.

Oſſiculum quartum.

Musculi; The Auditory Bones are mov'd by Four Muſcles, which are ſo ſmall, that all of 'em are not larger than a Barley-Corn. The firſt is call'd *Externus Tympani*, it ariſes from the upper part of the *Meatus Auditorius* under the Membrane, and is inſerted into a Proceſs of the *Malleolus*, which it pulls down and relaxes the Membrane of the *Tympanum* when the impulſe of the Air againſt that Membrane is too ſtrong; alſo when we ſleep. The ſecond is *Obliquus*, it ariſes from a ſmall Boney Channel above the *Iter ad Aurem*, and being inſerted into the *Malleolus*, aſſiſts the former Muſcle. The third is the *Internus*, it ariſes involv'd in a ſtrong Membrane from another Bony Channel, and being inſerted into the *Malleolus*, extends the *Membrana Tympani*, when Sounds are too low. The fourth is the *Muſculus*

Ext Tympani.

Obl. Tympani.

Int. Tympani.

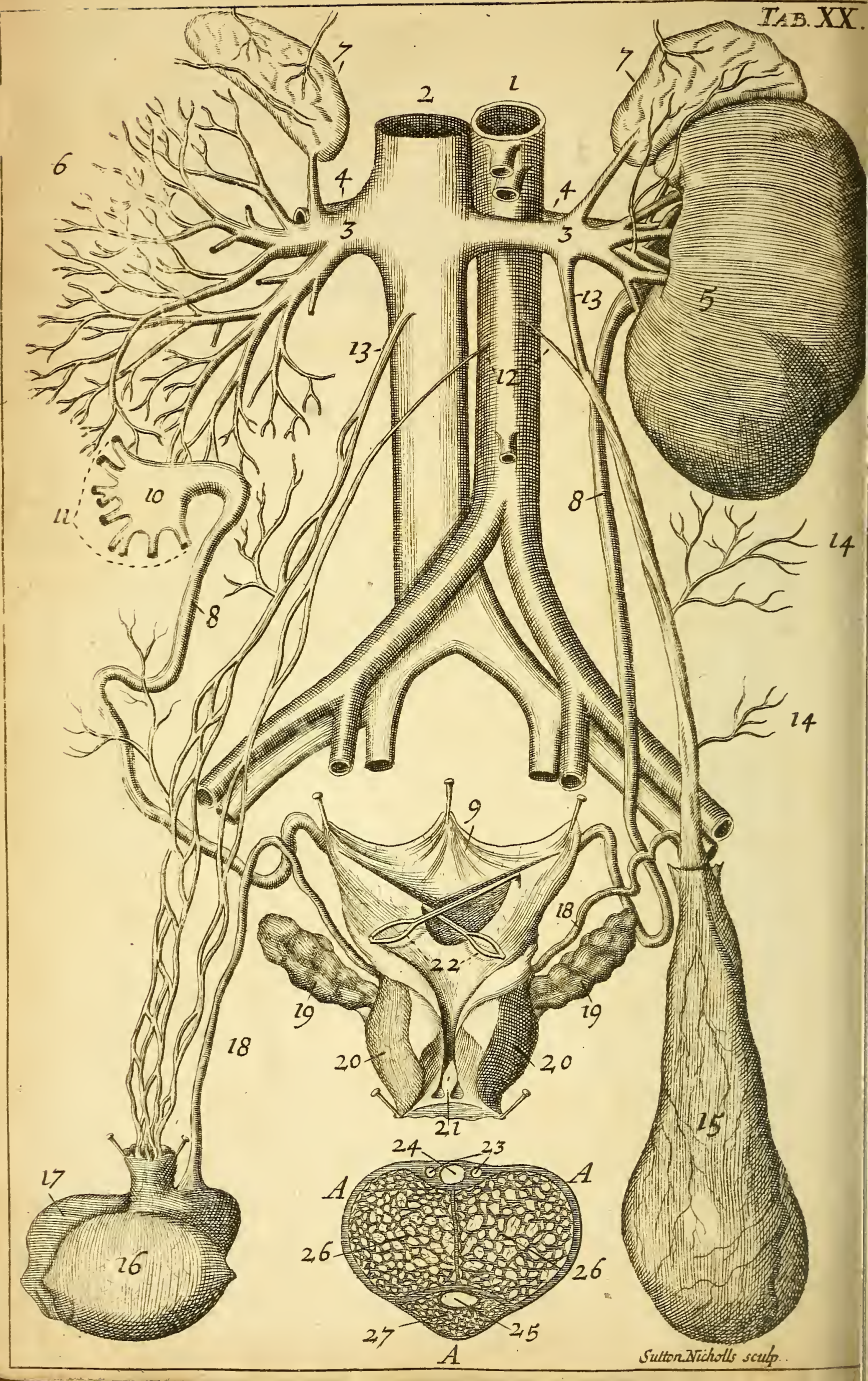
Muſc. Stapidis.

culus Stapidis ; this alſo lies in a Boney Channel, and is inſerted into the ſide of the *Stapes*, which Bone it draws from the *Feneſtra Ovalis*.

The Senſe of Smelling, Taſting, and Feeling, are Perform'd by the Nerves ending in the Noſe, Tongue, and all the Surface of the Body.

TABLE

TAB. XX.



Sutton Nicholls sculp.

TABLE XX.

The Urinary and Genital Parts of a MAN.

1 *ARTERIA Aorta Deſcendens.*

2 *Vena Cava Aſcendens.*

3 The Emulgent-Veins.

4 The Emulgent-Arteries.

5 The Left Kidney.

6 The Emulgent-Vein taken out of the Right Kidney.

7 The *Glandulæ Renales.*

8 The Ureters.

9 Part of the Bladder of Urine.

10 The Pelvis of the Right Ureter taken out of the Kidney.

11 The *Tubuli Urinarii* taken out of the Right Kidney.

12 The Spermatic Arteries.

13 The Spermatic Veins, the Right entering the *Cava*, and the Left the Emulgent.

Table XX.

14 Colateral Branches of the Spermatic-Vein, which on this ſide is not laid bare, and ſeparated from the Artery which runs in the ſame Membrane with it.

15 The Left Teſticle included in the *Proceſſus Vaginalis* or *Elythroides*.

16 The Right Teſticle denuded.

17 The Right *Epididymis*.

18 The *Vaſa Deferentia*.

19 The *Veſiculæ Seminales*.

20 The *Proſtatæ*.

21 The *Roſtrum Gallinaginis* in the *Urethra*.

22 Two Probes put into the Ureters, to ſhew their oblique Paſſage into the Bladder of Urine.

A, A tranſverſe Section of the *Penis* prepar'd with *Mercury*.

23 The Two Arteries of the *Penis*.

24 The *Vena Ipſius Penis*.

25 The *Urethra*.

26 The *Corpora Cavernoſa Penis*.

27 The *Corpora Cavernoſa Urethræ*.

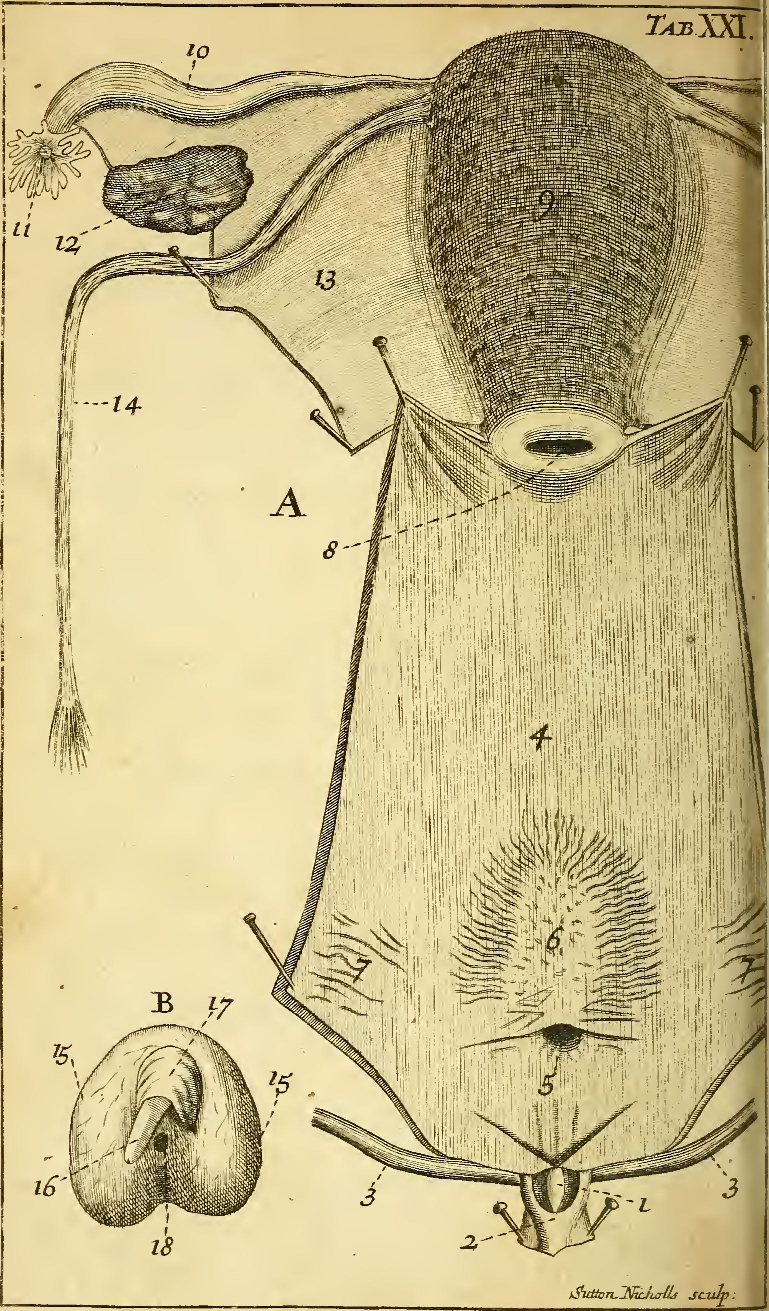

10
11
12
13
9
14
A
8
4
6
7
7
5
3
3
1
2
B
17
15
15
16
18
Sutton Nicholls sculp:

TABLE XXI.

A, The Genital Parts of a WOMAN revers'd, and the *Vagina Vteri* cut open.

1 THE *Glans* of the *Clitoris.*

2 The *Præputium* of the *Clitoris.*

3 The *Crura* of the *Clitoris.*

4 The *Vagina Vteri.*

5 The exit of the *Meatus Vrinarius.*

6 *Rugæ.*

7 *Carunculæ Myrtiformes.*

8 *Os Tincæ*, or the Mouth of the *Vterus.*

9 The *Vterus.*

10 The Left Faloppian Tube.

11 The *Fimbriæ* or *Morſus Diaboli.*

12 The Left Teſticle, or Ovary.

BOOK IV.

13 Part of the *Peritoneum*, commonly call'd the Broad Ligament of the *Uterus.*

14 *Ligamentum Teres.*

B, The Figure of an Hermophrodite Three Months old.

15 The Scrotum divided without Teſticles in it, nor were there any to be felt in the Groins.

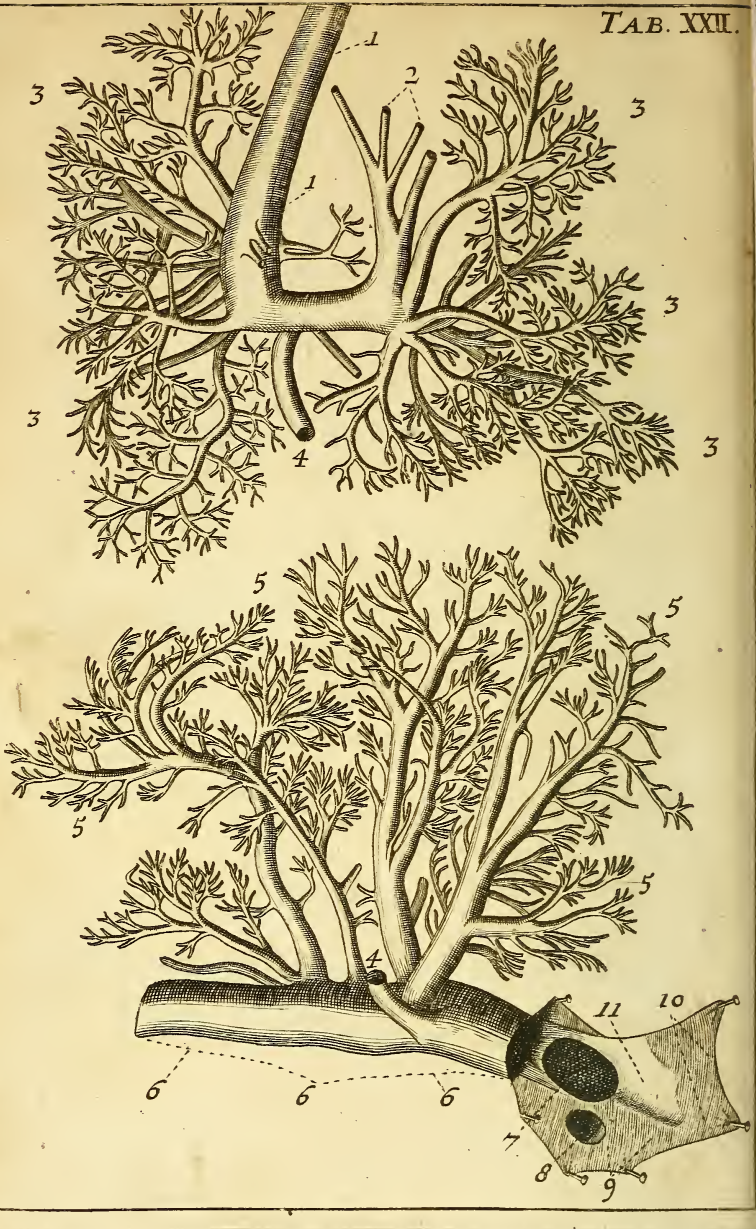
16 The *Glans* of the *Clitoris* the length of a *Penis* with a ſmall *Urethra*, thro' which the Urine wou'd only drop.

17 A large *Præputium* that cover'd all the *Glans Clitoridis.*

18 The Orifice of the *Vagina*, without *Labia* or *Nymphæ*; but with a large Urinary Paſſage, thro' which the Urine flow'd plentifully.

NB. This Child ſeem'd a Mixture of the Sexes, but neither Perfect.

TAB. XXII.



Sutton Nicholls sculp

TABLE XXII,

The VESSELS *of the* LIVER, *&c. of a* FOETUS, *fill'd with Wax.*

1 THE Umbilical-Vein.

2 Branches of the *Vena Porta.*

3 The extreme Branches in the Liver

4 *Ductus Venoſus.*

5 The extreme Branches of the *Cava* in the Liver.

6 The Aſcending *Vena Cava.*

7 The *Foramen Ovale.*

8 The Mouth of the Coronary-Veins.

9 Part of the Right Auricle of the Heart.

10 Part of the Deſcending *Cava.*

11 *Tuberculum Loweri.*

TABLE XXIII.

The Great VESSELS *of the* HEART, *both of a* FOETUS *and an* ADULT.

A, THE great Veſſels in the *Thorax* of a *Fœtus*, fill'd with Wax.

1 The beginning of the *Aorta.*

2 The Coronary Arteries of the Heart.

3 The Deſcending *Aorta.*

4 The Subclavian Arteries.

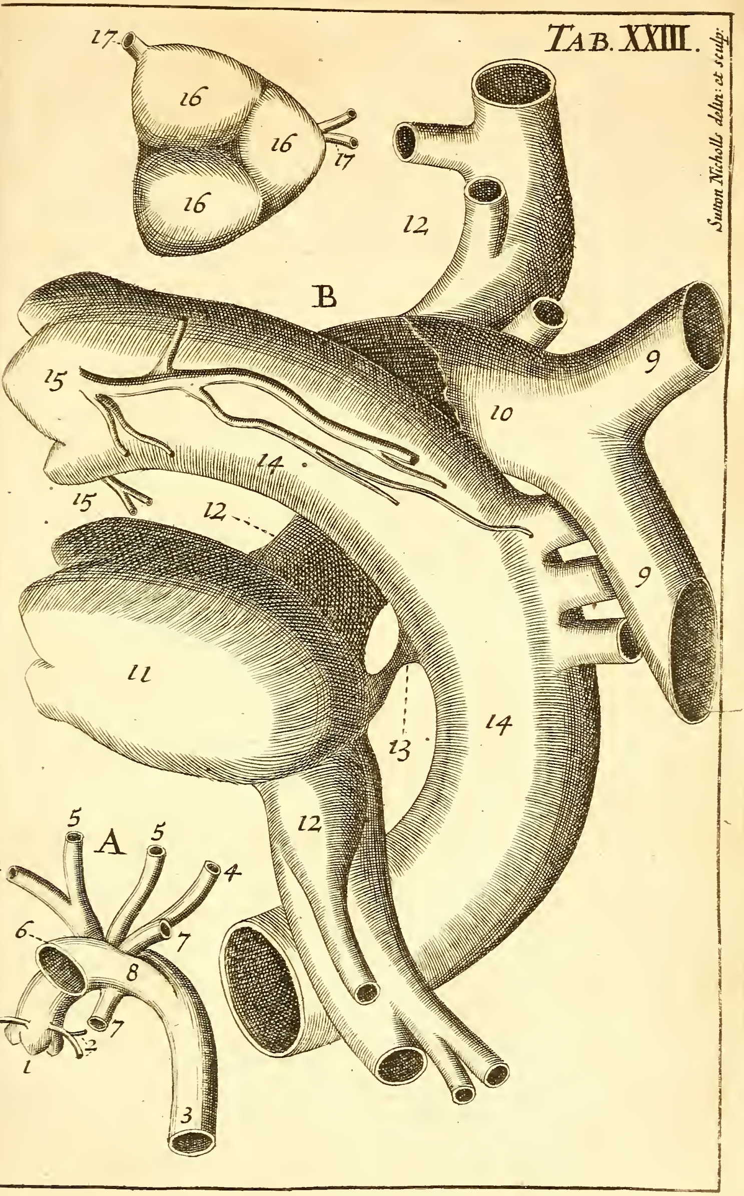
5 The Carotid Arteries.

6 The Pulmonary Artery, a piece of it being cut away, to bring the Beginning of the *Aorta* in ſight.

7 The Branches of the Pulmonary Artery going to the Lungs.

8 The *Ductus Arterioſus* running directly from the Pulmonary Artery into the *Aorta.*

TAB. XXIII.



Sutton Nicholls delin: et sculp:

B, The great Veſſels in the *Thorax* of an Adult, fill'd with Wax.

9 The Two Subclavian Veins.

10 The Deſcending *Vena Cava.*

11 The Pulmonary Artery.

12 The Branches of the Pulmonary Artery.

13 The *Ductus Arterioſus* ſhrivel'd, and its Poſture alter'd.

14 The Aſcending, and part of the Deſcending *Aorta.*

15 *Arteriæ Coronariæ Cordis.*

16 The Semilunar Valves of the *Aorta.*

17 The *Arteriæ Coronariæ Cordis.*

SYLLABUS,

SIVE

INDEX

Humani Corporis partium

ANATOMICUS,

In xxxv Prælectiones diſtinctus.

In Uſum

Theatri Anatomici.

WILLHELMI CHESELDEN, *Chirurgi*, S.R.S.

Editio Secunda.

> *——Has ne poſſim Naturæ accedere partes,*
> *Frigidus obſtiterit circum præcordia ſanguis.*
> Virgil.

OSTEOLOGIA.

Prælectio Prima.

De articulationibus & Structura Oſſium.

- DIarthroſis,
  - Enarthroſis,
  - Ginglimus,
- Synchondroſis.
- Synarthroſis,
  - Sutura,
  - Gomphoſis.

Vid Pag. 3, & 4.

Prælectio Secunda.

De Oſſium textura, Membraniſque, &c.

- IN Textura ſunt obſervanda,
  - Fibræ,
  - Partes,
    - compactæ,
    - ſpongioſæ.

Mem-

Membranæ,
- Pericranium,
- Perioſteum,
- Glanduloſæ Cellulas inveſtientes,
- Medullam continentes.

Medulla
- adipoſa,
- ſanguinea.

De
- Epiphyſibus, & Apophyſibus in genere,
- Introitu, & exitu Vaſorum,
- Oſſium nutritione, & incremento.

Vid. Pag. 1, 2, 3, 4.

Prælectio Tertia.

De Suturis, & Oſſibus Cranii.

SUtura
- Coronalis,
- Sagittalis,
- Lambdoidalis, —— *Oſſa Triquetra.*
- Squamoſa,
- Tranſverſalis.

Cæteræ ab Oſſibus. quæ circumagunt nominantur.

Os,

Bregmatis.

Frontis,
- Spina :
- Foramina :
- Sinus.

Ethmoides,
- Criſta Galli,
- Foramina.

- Sphenoides,
  - Proceſſus
    - Pterygoides
      - externus,
      - internus,
    - Innominatus
    - Salpingoides,
    - Clinoides:
  - Sella Turcica:
  - Foramen
    - primum,
    - ſecundum, vel lacerum,
    - tertium,
    - quartum,
    - quintum:
  - Sinus Sphenoidalis.

- Temporis,
  - Proceſſus Mammillaris,
  - Proceſſus e quo fit Os Jugale dictum.

- Petroſum,
  - Foramen
    - ſextum,
    - ſeptimum:
  - Proceſſus Styliformis.

Meatus auditorius, &c. *Vide, de organis auditûs.* Præl. xxv.

Foramen octavum.

- Occipitis,
  - Foramen
    - nonum,
    - decimum, vel magnum:
  - Apophyſes 2.

Foramina quædam Innominata.

Vid. Pag. 4, 5, 6, 7, 8, 9.

Prælectio Quarta.

De Oſſibus Faciei, & Maxillarum, &c.

Os,

NASI.
Unguis, —ductus ad Naſum.
Planum.
Mali, vel Zygoma.
Palati, — Foramina.
Vomer.

Spongioſum & ſeptum Naſi quid.

- Maxilla
  - Superior,
    - Alveoli,
    - Foramina,
    - Antrum:
  - Inferior,
    - Proceſſus
      - Condyloides,
      - Coronalis,
      - Innominatus:
    - Foramina,
    - Alveoli.

- Dentes
  - Inciſorii,
  - Canini,
  - Molares,
  - Sapientiæ.

Vid. Pag. 9, 10, 11, 12.

Prælectio Quinta.

De Oſſibus Trunci Corporis.

Spina, ejus Vertebræ.

- COLLI 7.
  Atlas prima,
  Dentata ſecunda,
  Proceſſus dentatus,
  - partes anteriores ſpongioſæ:
  - Proceſſus,
    - Obliqui
      - ſuperiores,
      - inferiores,
    - Spinales bifurcati
    - Tranſverſ. perforati.
- Dorſi 12.
  Lumborum 5.
  - partes anteriores ſpongioſæ:
  - Proceſſus,
    - Obliqui
      - ſuperiores,
      - inferiores,
    - Spinales,
    - Tranſverſales.
- Sacri 5, vel 6.
  - Spinæ:
  - Foramina:
  - Proceſſus obliqui ſuperiores.
- Coccygis 4, vel 5.

Coſtæ 12
- veræ 7.
- nothæ 5

Apophyſes, & ſulci.

Sternum
- Oſſa Pectoris, plerumq; tria:
- Cartilago enſiformis:
- Cartilagines ad Coſtas.

Os Hyoides

Vid. Pag 14, 15, 16, 17.

Prælectio Sexta.

De Oſſibus artûs ſuperioris.

Os,

CLAVICULA.

- Scapula,
  - Acetabulum:
  - Proceſſus
    - Coracoides,
    - Acromion:
  - Coſta
    - Superior,
    - Inferior.
  - Spina:
  - Baſis.
- Humeri,
  - Caput:
  - Apophyſis ſuperior:
  - Sulcus:
  - Apophyſis inferior:
    - externus,
    - internus
  - Sinus:
- Ulna
  - Olecranon,
  - Proceſſus Styloides.
- Radius, —— Tuberculum.
- Carpi, ordinis 4.
  - primi
  - ſecund

Metacarpi 4.
Pollicis 3.
Digitorum 12.

Vid. Pag. 17, 18, 19.

Prælectio Septima.

De Oſſibus artûs inferioris.

Os,

- Innominatum,
  - ILIUM,
    - Spina,
    - Apex.
  - Iſchium—Proceſſus
    - obtuſus,
    - acutus.
  - Pubis.
  - Acetabulum ;
  - Foramen.
- Femoris,
  - Caput ;
  - Trochanter
    - major,
    - minor ;
  - Linea aſpera ;
  - Apophyſis
    - exterior
    - interior
    - inferior.

Patella

Patella.

Tibia, Apophyſes.

Fibula,—Appendix
- ſuperior,
- inferior.

Tarſi 7.
- Aſtragalus :
- Calcaneum :
- Cuboides :
- Naviculare :
- Cuneiforme
  - majus,
  - medium,
  - minimum:

Metatarſi 4.
Pollicis pedis 3.
Digitorum pedis 12.
Seſamoidea.

Vid. Pag. 20, 21, 22, 23.

Prælectio Octava.

De Ligamentis, & Cartilaginibus Capita oſſium inveſtientibus, & Glandulis Oſſium, juncturis inſervientibus: Etiam de his quibus Sceleton Viri, & Fœminæ Fœtus, & Adulti differunt.

De { LIGAMENTIS in genere,
Ligamento Terete,
Cartilaginibus in genere,
Glandulis juncturas lubricantibus,

Vid. Pag. 23, 24, 25, 26, 27, 28, 29, 30.

ENTEROLOGIA.

Prælectio Nona.

De quibuſdam Partium externarum integumentiſque & Partibus conſtituentibus.

MAMMÆ, { Papillæ,
Areolæ.

Scrobiculus Cordis.
Regio Umbilicalis.
Hypochondria.
Hypogaſtrium.

Cæteræ partes externæ propriis Prælectionibus ſunt demonſtrandæ.

Cuticula.
Reticulum mucoſum.

Cutis. { Papillæ Pyramidales. —— Ungues.
Bulbi, unde procedunt —— Pili.

Glandulæ miliares, vel ſudoriferæ.
Membrana adipoſa.

Fibra.
Membrana.
Arteria.
Vena.
Lymphæductus.

Nervus.
Glandula.
Vas { lacteum,
Excretorium
Muſculus.

Tendo.
Os.
Cartilago.
Ligamentum.

Vid. Pag. 91, 92, 93. & Introduct.

Prælectio Decima.

De Membranis totius Corporis.

Dura Mater.
Pia Mater.
Mediaſtinum.

Pleura.
Peritoneum, *&c.*

Vid. Pag. 130, 131, 94, 95, 96, 41.

Prælectio Undecima.

De Glandulis ſalivalibus, earumque ductibus.

Parotides, vel Maxillares ſuperiores.
Maxillares inferiores.
Sublinguales.
Tonſillæ.
} earum ductus.

Innominatæ in orbitis oculorum.

Membrana Glandularis oris, cujus Glandulæ nominantur.
- Buccales.
- Labiales.
- Linguales.
- Fauciales.
- Palatinæ.
- Uvulares.

Vid. Pag. 97, 98, 99, 100.

Prælectio Duodecima.

De Ductu Alimentali, & Membranis in Abdomine.

PEritoneum —— Vaſa Umbilicalia. *Vide* Præl. xxii.

Omentum,
- Ala,
  - ſuperior,
  - inferior.
- Burſa.

Oeſophagus.

Ventriculus, —— orificum
- ſiniſtrum, Cardia,
- dextrum, ubi circulus fibroſus.

Inteſtina tenuia,
- Duodenum :
- Jejunum :
- Ilium.

Inteſtina craſſa,
- Colon, ubi valvulæ ad ingreſſum :
- Cæcum :
- Rectum.

In omni parte ductus Alimentalis eſt notanda,

Tunica
- externa, Communis,
- media, Muſcularis,
- interna Glanduloſa, Villo obducta.

In
- Ventriculo flaccido, Rugæ:
- Inteſtinis
  - tenuibus, Valvulæ Conniventes.
  - craſſis, Cæco excepto,
    - Ligamenta:
    - Glandulæ pyerianæ:
    - Valvulæ.

Meſenterium, ——Glandulæ
- Majores, *in Canibus Pancreas Aſellii.*
- Minores.

In omnibus his membranis, ſunt obſervandæ Lamellæ.

Vid Pag. 95, 100, 101, 102, 103, 104, 105.

Prælectio Decima Tertia.

De Hepate, Pancreate, Splene & Via lactea.

HEpar,
- Ligamentum
  - Suſpenſorium,
  - Latum,
  - Umbilicale.
- Vena
  - Porta,
  - Cava.
- Veſica Fellea.
- Vaſa excretoria,--Ductus
  - Cyſtihepatici,
  - Cyſticus,
  - Hepaticus,
  - Communis Choledochus.

Pancreas —— Ductus excretorius.

Splen, { Rete,
Cellulæ.

Vid. Pag. 106, 107, 108, 109.

Prælectio Decima Quarta.

De quibuſdam Glandulis, & de Vaſis lacteis & Lymphaticis.

VENÆ lacteæ, { primi / ſecundi } generis

Receptaculum chyli.
Ductus Thoracicus.
Lymphæductus in genere.

Glandulæ { Vaſa ubiq; concomitantes.
Inguinales,
Axillares.

Vid. Pag. 111, 112, 127, 128, 129, 130.

Prælectio Decima Quinta.

De Corde, & partibus reſpirationi inſervientibus.

LArynx, —— Cartilago { Thyroides,
Cricoides,
Arytænoides,
Epiglottis.

Bronchos, —Cartilagines, Pene-anulares.

Glandulæ Thyroideæ.
Thymus,
Pleura.
Mediaſtinum.

- Pulmones,
  - Lobi,
  - Lobuli.

Pericardium.

- Cava
  - deſcendens,
  - aſcendens.

Tuberculum Loweri.

- Cor
  - Auricula dextra,
    - Columnæ
    - Foraminis ovalis locus.
    - Oſtium Venarum coronariarum.
  - Ventriculus dexter,
    - Valvulæ tricuſpides.
    - Papillæ.
    - Columnæ.
  - Arteria Pulmonalis,
    - Valvulæ ſigmoidales.
    - Canalis arterioſus in Ligamentum verſus.
  - Vena Pulmonalis.
  - Auricula ſiniſtra, —Columnæ.
  - Ventriculus ſiniſter,
    - Valvulæ mitrales.
    - Papillæ.
    - Columnæ.
  - Septum Cordis.

Aorta,

Aorta, { Valvulæ ſemilunares.
Oſtia Arteriarum coronariarum.

Vid. Pag. 24, 25, 128, 129, 96, 112, 113, 114, 115, 116,

Prælectio Decima Sexta.

De Arteriis & Venis ſuperioribus.

Arteriæ.

Aorta aſcendens,
Coronariæ Cordis,
Subclaviæ,
Thymæ,
Mammariæ,
Cervicales,
Carotides,
Thyroideæ,
Laryngeæ,
Temporales,
Occipitales,
Parotides,
Ranulæ,
Faciei,

Venæ,

Jugulares, { externæ,
internæ.
Rami communicantes,
Ranulares,
Faciei,
Parotides,
Laryngeæ,
Thyroideæ,
Mammariæ,
Thymæ,
Occipitales,
Cervicales,
Subclaviæ,
Cava deſcendens.

Vaſa Cerebri, Vide Præl. xviii.

Axillaris,
Humeralis,

Digitales,
Cephalica,

Cubitalis ſuperior,
  media,
  inferior.
Ramus communicans,
Digitales.

Mediana,
Baſilica,
Salvatella,
Humeralis,
Axillaris.

Vid. Chap. ix. Book III.

Prælectio Decima Septima.

De Arteriis, & Venis inferioribus.

Arteriæ.

AOrta deſcendens,
Intercoſtales,
Bronchiales,
Phrenicæ,
Cœliaca,
Pancreatica,
Hepatica,
Cyſtica,
Coronaria Ventriculi ſuper.
Epiploicæ,
Splenica,
Coronaria Ventriculi infer.
Meſenterica ſuperior,
Emulgentes,
Spermaticæ,

Venæ.

DIgitales Pedis,
Saphæna,
Tibiales,
Popliteæ,
Cruralis,
Epigaſtricæ,
Iliaca externa,
  interna.
Lumbares,
Spermaticæ,
Emulgentes,
Meſeraicæ,
Coronaria Ventriculi infer.
Splenica,
Epiploicæ,

Lumbares,

Arteriæ.

Lumbares,
Meſenterica inferior,
Rami communicantes,
Sacra,
- Iliaca
  - externa,
  - interna.

Epigaſtricæ,
Cruralis,
- Tibialis
  - exterior,
  - media,
  - interior.

Ramus communicans,
Digitales Pedis.

Venæ.

Coronaria Ventriculi ſuper.
Cyſtica,
Hepatica,
Pancreatica,
Porta,
Phrenicæ,
Intercoſtales,
Bronchiæ,
Azygos in Cavam deſcendentem,
Cava aſcendens,
Earum Valvæ.

Tunicæ, & Vaſa Vaſorum.

Prælectio Decima Octava.

De Cerebro, ejuſque Membranis, & Vaſis.

- Dura Mater,
  - Proceſſus
    - primus, (i. e.) Falx,
    - ſecundus,
    - tertius.
  - Sinus
    - Longitudinalis
      - ſup.
      - infe.
    - Laterales,
    - Rectus,
    - Circularis
    - Innominata 4 prope Oſſa petroſa.

ubi Ligamenta. Torcular Herophili.

Cæteri non ſunt ſemper obſervandi.

- Pia Mater
  - Arteriæ.
  - Venæ.
  - Volvuli.

- Cerebrum,
  - Hemiſpheria 2.
  - Lobi 4.
  - Arteriæ
    - Carotides,
    - Cervicales.
  - Infundibulum.
  - Glandula pituitaria.
  - Protuberantiæ 2 albæ pone infundibulum.
  - Medulla oblongata,
    - Crura.
    - Caudex.
    - Protuberantia annularis.
  - Nervorum par
    - 1. 2. 3. 4. 5. ſeu
      - Olfactorium.
      - Opticum.
      - Oculorum motorium.
      - Patheticum.
      - Guſtatorium.
    - 6. unde Rami intercoſtales.
    - 7. 8. ſeu
      - Auditorium.
      - vagum,—Nervus
        - Acceſſorius.
        - Recurrens.
    - 9.
    - 10.

Cerebellum, ——Proceſſus vermiformes.

- Subſtantia
  - Corticalis cinerea.
  - Medullaris alba.

Septum lucidum.

Fornix,
- Radices.
- Crura.

Ventriculi 2 anteriores,
- Plexus Choroïdes.
- Glandula Pinealis.
- Corpora ſtriata.
- Thalami Nervorum opticorum.
- Nates.
- Teſtes.

Foramen
- ad Radices Fornicis,
- anterius,
- poſterius.

Ventriculus tertius.

Ventriculus quartus,
- Valvula.
- Pedunculi.

Quod de Cerebro ſupereſt notatu indignum judico.

Vid. Pag. 130, 131, 132, 133, 134, 135, 136.

Prælectio Decima Nona.

De Medulla Spinali & Nervis paſſim in Corpus diſperſis.

- Medulla Spinalis,
  - Meninges.
  - Cauda Equina.
  - Nervor: pares
    - Cervicis 7.
    - Dorſi 12.
    - Lumborum 5.
    - Sacri 6.

Brachiales,
Cubitales,
Digitales
Intercoſtales,

- Cruralis
  - anticus,
  - poſticus,

Tibiales,
Digitorum pedis.

Sunt plurimi ex his oriundi, & per Corpus undique diſperſi. Et a partibus quibus ſubſerviunt nominantur.

Vid. Pag. 136, 137, 138, 139, 140, 141, 142, 143.

Prælectio Vigeſima.

De Partibus Urinariis, & Organis generationis in Viris.

- Renes,
  - Arteriæ, Venæ — emulgentes.
  - Glandulæ.
  - Papillæ.
  - Tubuli Urinarii.
  - Pelvis.

Glandulæ Renales, —— Sinus.
Ureteres.

- Veſica urinaria, — Tunica
  - Externa communis,
  - Media, *Muſculus detruſor urinæ.*
  - Interna.

Muſculus Sphincter Veſicæ.

- Teſtes,
  - Tunicæ
    - Communes,
      - externa, Cutis.
      - interna, Dartos.
    - Propriæ
      - externa, Proceſ. Elythroides.
      - interna, Albuginea.
  - Arteriæ, Venæ — Spermaticæ.
  - Corpora varicoſa.
  - Epididymes.

Vaſa deferentia.

Veſiculæ

Veſiculæ ſeminales.
Proſtatæ.

- Penis,
  - Glans,
    - Præputium.
    - Frœnum.
    - Corpora cavernoſa.
    - Glandulæ odoriferæ.
  - Crura.
  - Corpora cavernoſa.
  - Septum.
  - *Connexio ad Oſſa pubis, vulgo Ligamentum ſuſpenſorium.*
  - Urethra,
    - Corpus cavernoſum.
    - Roſtra Gallinaginis.
    - Membrana Glanduloſa.

Muſculi: Vide Præl. xxvi.

Vid. Pag. 161, 162, 163, 164, 165.

Prælectio Vigeſima Prima.

De Partibus Generationis Mulierum.

- Externæ,
  - Mons Veneris,
  - Rima Magna,
  - Labia,
  - Nymphæ.
  - Clitoris,
    - Glans,
    - Præputium,
    - Crura,
    - Corpora cavernoſa.
  - Meatus Urinarii exitus.

Vag,

Vagina,
- Hymen.
- Carunculæ myrtiformes.
- Rugæ.
- Glandulæ.
- Lacunæ.

Uterus,
- Ligamenta.
- Os Tincæ.

Tubæ Faloppianæ,
- Fimbriæ.
- Foramina.

Teſticuli
- Arteriæ, Venæ } ſpermaticæ.
- Corpora varicoſa.
- Ova.

Vid. Pag. 166, 167, 168, 169.

Prælectio Vigeſima Secunda.

De Fœtu in Utero, cum Membranis, &c.

Membrana
- Chorion.
- Allantois.
- Amnion.

Humores,
Placenta Uterina.

Vaſa umbilicalia,
- Vena.
- Arteriæ.
- Urachus.

Foramen ovale.
Ductus arterioſus.

Vid. Pag. 169, 170, 171, 172, 173.

Prælectio Vigeſima Tertia.

De Organis Tactus, Guſtus, & Odoratus.

Tactus.

Papillæ pyramidales in Cute. *Vide Præl.* ix.

Guſtus.

Papillæ pyramidales in Lingua.

Odoratus.

Membrana Glandulоſa, & Nervea, paſſim inducta in Laminas Naſi, commune Os ſpongioſum dictum.

Vid. Pag. 180.

Prælectio Vigeſima Quarta.

De Organis Viſus.

Palpebræ cum Ciliis, & Superciliis.
Caruncula lachrymalis.

Tunica.
- Conjunctiva,
- Sclerotis,
- Cornea,
- Choroides,
- Uvea,
- Retina,
- Aranea.

Proceſſus Ciliares.
Iris.
Pupilla.

Humores,
- Aqueus,
- Vitreus,
- Cryſtallinus.

Vid. Pag. 174, 175, 176.

Prælectio Vigeſima Quinta.

De Organis Auditûs.

AURICULA,
Meatus Auditorius, ——Membrana Glanduloſa.
Iter ad Palatum.
Tympanum.
Membrana Tympani.

Feneſtra
- ovalis,
- rotunda.

Veſtibulum.

Labyrinthus,
- Cochlea.
- Canales tres ſemicirculares.

Oſſa,
- Incus.
- Stapes.
- Malleolus.
- Oſſiculum quartum.

Muſculus
- externus, obliquus, Tympani, —— laxatores;
- internus, —— Tympani, tenſor.
- ſtapidis.

Vid. Pag. 177, 178, 179, 180.

MYOLOGIA.

Prælectio Vigeſima Sexta.

De Muſculis Abdominis, &c.

FASCIA tendinoſa, *vulgo Membrana communis Muſculorum.*
Membrana propria.

Abdominis.

Obliqui { deſcendentes,
{ aſcendentes,
Pyramidales, —— *ſæpe deſunt*
Recti, —— flexores.
Tranſverſales.
} Compreſſores.

Cremaſteres Teſtium.
Erectores Penis.
Acceleratores urinæ.
Erectores Clitoridis.
Sphincter Vaginæ.
Sphincter ani; *ubi in Viris portio tranſverſalis Penis dicta.*
Levatores ani.

Vid. Pag. 41, 42, 43, 45, 45, 46.

Prælectio Vigeſima Septima.

De Muſculis Faciei, Oculi, &c.

Frontis.

OCCIPITO-FRONTALIS.
Retractor Auriculæ.

Palpebrarum.

Orbicularis.
Ciliaris, *eſt portio prioris.*
Aperiens Palpebram ſuperiorem rectus.

Oculi,

Elevator.
Depreſſor.
Adductor.
Abductor.

Obliquus { ſuperior, ſeu Trochlearis,
inferior.

Faciei.

Sphincter Oris.

Elevator } Labii ſuperioris { Dilatator } alarum Naſi.
Depreſſor } proprius eſt { Conſtrictor }

Elevator
Depreſſor } Labi inferioris, proprius.

Elevator
Depreſſor } Labiorum communis.

Zygomaticus.
Buccinator.
Platyſma Myoides.

Vid. Pag. 46, 47, 48, 49, 50, 51.

Prælectio Vigeſima Octava.

De Muſculis Oſſis Hyoidis, Linguæ, & Laryngis.

Oſſis Hyoides.

MYLOHYOIDEI,
Geniohyoidei, } ſurſum antrorſumq;

Stylohyoidei, ——ſurſum, retrorſumq;
Coracohyoidei, ——deorſum, retrorſumq;
Sternohyoidei, ——deorſum.

Linguæ.

Genioglosſi, ——ſurſum, antrorſumq;
Stylogloſſi, —— ſurſum, retrorſumque;
Ceratogloſſi, ——deorſum.

Laryngis,

Laryngis.

Hyothyroidei, —— Elevatores }
Sternothyroidei, } depreſſores, } Thyroidis.
Cricothyroidei, }

Cricoarytœnoidei, { poſtici, } apertores }
{ laterales, } } Arytœnoidis.
Thyroarytœnoidei, } clauſores. }
Arytœnoidei, }

Vid. Pag. 51, 52, 53, 54.

Prælectio Vigeſima Nona.

De Muſculis Maxillæ inferioris, Pharyngis, & Uvulæ.

Maxillæ inferioris.

DIgaſtricus, —— depreſſor.
Maſſeteres, }
Temporales }
} elevatores.
Pterygoidei { externi, }
{ interni, }

Pharyngis.

Stylopharyngei, ——dilatores.
OEſophagei, —— conſtrictores:
Vaginalis Gulæ.

Uvulæ.

Pterygoſtaphylini {externi, ——deorſum,
{interni, ——ſurſum.

Vid. Pag. 55, 56, 54.

Prælectio Trigeſima.

De Muſculis Claviculæ, Scapulæ, Humeri, & Cubiti.

Claviculæ.

SUBCLAVIUS.

Scapulæ.

Trapezius ——retrorſum.
Patientiæ, ſeu Elevator,
Rhomboides, ſurſum, retrorſumq;

Serratus {major} anticus, {antrorſum, ſurſumq;
{minor} {antrorſum, deorſumq;

Pectorális, ——antrorſum.

Deltoides, } ſurſum.
Supraſpinalis, }

Infraſpinalis

Infraſpinalis Teres { major, Teres { minor *eſt por. Muſc. infraſp.* Latiſſimus Dorſi,	retrodeorſum

Coracobrachialis, ——ſurſum, extrorſumq;
Subſcapularis, ——introrſum.

Cubiti.

Biceps, Brachialis,	Flexores.
Triceps, Anconeus,	Extenſores.

Vid. Pag. 56, 57, 58, 59, 60.

Prælectio

Prælectio Trigeſima Prima.

De Muſculis Volæ Manûs, Carpi, Pollicis, Digitorum, & Radii.

Volæ Manûs,

- Palmaris
  - longus, *ſæpe deeſt.*
  - brevis, ſeu caro quadrata,
  - conſtrictores.

Carpi.

- Flexor
  - Radialis,
  - Ulnaris.

- Extenſor
  - Radialis, ſeu Bicornis,
  - Ulnaris.

Pollicis.

- Extenſor
  - primi
  - ſecundi
  - tertii
  - internodii.

- Flexor
  - primi, & ſecundi Oſſi
  - tertii internodii.

Adductor.
Abductor.

Digitorum.

Perforatus, ——ſecundi
Perforans, —— tertii } internodii flexor.
Lumbricales, ——primi

{ Communis
Extenſor { Indicis,
{ Auricularis.

Abductor { primi } digiti
{ minimi }

Interoſſei, ——extenſores, & divaricatores.

Radii.

Supinator { longus,
{ brevis.

Pronator { teres,
{ quadratus.

Vid. Pag. 61, 62, 63, 64, 65, 66.

Prælectio Trigeſima Secunda.

De Muſculis Capitis, & Colli.

Capitis.

MASTOIDEI, } flexores.
Recti { interni { majores } flexores.
Recti { interni { minores }
Recti { laterales ——utrinque.

Colli.

Longi, ——flexores,

Scaleni,
Intertranſverſales,

Capitis.

Splenii. }
Complexi, } extenſores.

Recti { majores, } extenſores.
Recti { minores } extenſores.

Obliqui { ſuperiores, } extenſores.
Obliqui { inferiores, ——rotatores.

Colli.

Spinales,
Tranſverſales, extenſores.
Interſpinales,

Vid. Pag. 66, 67, 68, 69.

Prælectio Trigeſima Tertia.

De Muſculis Dorſi, Lumborum, & Coſtarum.

Dorſi.

SACROLUMBALES,
Longiſſimi, extenſores.
Semiſpinales,

Lumborum.

Pſoæ parvæ, —flexores, *ſæpe deſunt.*
Quadrati, —utrinque.

Coccygei.

Coſtarum.

Serrati ſuperiores, poſtici levatores,
Serrati inferiores, poſtici depreſſores.

Intercoſtales externi, levatores
Intercoſtales interni, levatores

Triangulares, } conſtrictores.
Diaphragma,

Vid. Pag. 72, 73, 69, 70, 71.

Prælectio Trigeſima Quarta.

De Muſculis Femoris, & Tibiæ.

Femoris.

PSOA magna, } flexores
Iliacus internus,
Pectineus,
Triceps,

Gluteus { maximus, medius, minimus, } extenſores.

Pyriformis, } ſeu { Iliacus externus, } rotatores.
Marſupialis, } ſeu { Obturator internus,
Quadratus,
Obturator externus.

Tibiæ.

Membranoſus, ——extenſor extrorſum.

Sartorius, } flexores introrſum,
Gracilis,

Semiten-

Semitendinoſus,
Semimembranoſus
Biceps,
Popliteus,
} flexores.

Rectus,
Vaſtus { externus, internus,
Crureus.
} extenſores. *Potius extenſor quadriceps.*

Vid. Pag. 74, 75, 76, 77, 78, 79.

Prælectio Trigeſima Quinta.

De Muſculis Tarſi, Pollicis, & Digitorum Pedis.

Tarſi Muſculi.

GASTROCNEMIUS externus,
Plantaris, *ſæpe deeſt*
Gaſtrocnemius internus,
} extenſores.

Tibialis { anticus, — flexor / poſticus, — extenſor } introrſum.

Peroneus { longus, brevis, } extenſores extrorſum.

Pollicis Pedis.

Extenſor { longus, brevis,

Flexor { longus,
brevis

Abductor. }
Adductor. } *ſunt Flexores.*

Digitorum Pedis.

Extenſor { longus,
brevis.

Interoſſei, —— extenſores.

Perforatus, ——	ſecundi	internodii Flexor.
Perforans, ——	tertii	
Lumbricales, —	primi	

Minimi Digiti adductor. *Eſt Flexor.*
Tranſverſalis Pedis —— conſtrictor.

Vid. Pag. 79, 80, 81, 82, 83, 84.

FINIS.

Advertiſement.

THis SYLLABUS being contriv'd for thoſe who go thro' our Courſes of Anatomy, we have divided it into Lectures, and diſpoſed them according to the moſt convenient manner of Diſſecting, and the Order of the Animal OEconomy.

Firſt, We teach the OSTEOLOGY; after that, the ENTEROLOGY in Brutes, then in Humane Bodies together with the Muſcles as they ariſe in Diſſection, and in both the Comparative and Humane Anatomy, we give an account of the Uſe of the Parts and the Animal OEconemy, and point out the places where Chirurgical Operations are beſt perform'd: And occaſionally mention Obſervations of Caſes.

Our Courſes begin the Firſt of *September*, the Firſt of *November*, the Twelfth of *January*, and the Twelfth of *March*.